THE

LARYNGOSCOPE.

VOL. XXV. ST. LOUIS, JANUARY, 1915. No. 1.

ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding that they are contributed exclusively to THE LARYNGOSCOPE.)

PRELIMINARY REPORT ON THE USE OF PLASTIC OPERATIONS IN LARGE MASTOID CAVITIES.

DR. E. R. CARPENTER, El Paso, Texas.

The operation here described and illustrated has been used in a limited number of cases; it can be utilized in any mastoid where any other plastic is indicated. I have not employed it along with the primary operation, but if blood clotting and certain other procedures are to be recommended, then there are points of advantage in this method that should insure for it a greater amount of success than is usually encountered.

In large mastoid cavities where granulation is slow and requires several weeks of care, it has proved to be a great time-saver and the cosmetic effect is far better than that in any method I have seen.

From a cosmetic point of view this operation should find a field of usefulness in those cases where a deep depression exists after the mastoid wound has entirely healed by open granulation.

ADVANTAGES.

1. The transposed tissue is well nourished, having a direct normal blood-supply, thereby being able to assist the mastoid wound in place of depending on the more or less unhealthy region to start the process of repair.

2. The size and shape of the transposed tissue can be varied according to conditions.

3. No function of muscles or nerves is impaired.

4. Blood clotting in the interspaces is rapidly organized.

5. Slight infection is not necessarily disastrous to the success of the operation as would be the case in most other similar operations.

6. It may be used at any time, but preferably about the end of the second or third week when healthy granulations have formed.

7. No after-treatment is necessary. Cosmetic effect is good.

DISADVANTAGES.

1. Transposed tissue may shrink and lose some of the effect. This should not be and is not the case to any great extent as the

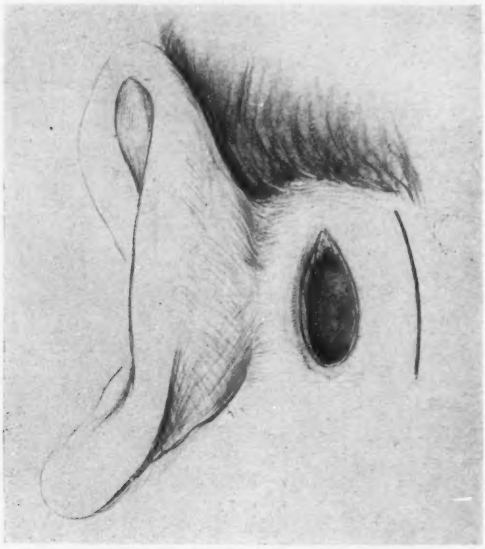

Figure 1 shows line of incision back of mastoid opening through skin only.

tissue is simply anchored in another position with a good blood-supply and well-organized tissue all about it.

2. A second operation is necessary unless it is employed at the time of the primary operation.

3. Slight second scar. This is hardly noticeable after a short time; the edges of the depression where the tissue was removed quickly smooth down and the depression gradually merges into the slight mastoid depression, causing it to appear less pronounced.

4. Where considerable infection may occur and the necessity of healing by open granulation may be called into use, the mastoid wound would not be clear. This could be readily procured by three or four clips of the curved scissors, some bleeding being unavoidable.

5. The procedure is not altogether so simple as indicated by the illustrations.

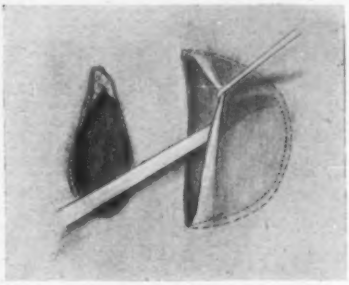

Figure 2. Dissecting skin back over fascia and muscle-tissue.

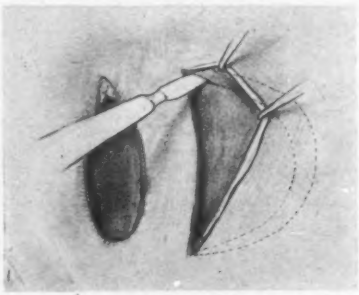

Figure 3. Holding up skin with hooks or forceps, inserting knife blade through fascia and muscle-tissue down to the periosteum. Following inner dotted line—secure flap according to size of the mastoid opening to be filled.

PREPARATION.

1. Denude the edges of the mastoid wound.
2. Irrigate the mastoid cavity with normal salt solution at 100°.
3. Pack mastoid cavity loosely with moist warm saline selveged gauze.
4. Then proceed with the various steps in the operation as shown and described with the illustrations.

The skin should be dissected more extensively than the size of the flap needed.

The gauze is removed from the cavity after the flap has been dissected up—the accompanying blood should not be removed too thoroughly as it plays an important part in the healing process. If the flap is unwieldy it may be necessary to incise it along edge of skin incision.

The flap is anchored to the anterior wall either by a catgut suture or by one of the skin sutures. A small drainage may be placed at the lower portion of the wound if desired. The undermined skin easily covers in the space formerly covered by the bridge of transposed tissue. The undermined skin and transposed

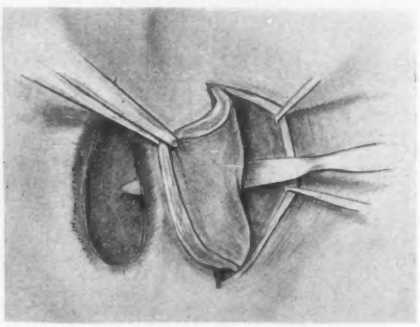

Figure 4. Tissue flap after being loosened and drawn out so as to insert instrument under all tissue down to periosteum including bridge between first incision and posterior edge of mastoid wound.

bridge must be retained in contact with the underlying tissue for several days by a pressure pad.

There are no blood-vessels or nerves of any consequence in this field that are liable to be involved; the connective tissue fascia, fat, fibrous and muscular tissue involved are of secondary importance, as a study of the anatomy of this region will show.

The following case with accompanying photograph was that of a boy, aged 12 years, who had an acute mastoiditis two weeks before operation. At the time of operation he had the classical symptoms of mastoiditis with pus.

The usual operation for acute mastoiditis was performed, except that the mastoid cavity was so large that it was necesary to make the horizontal incision backwards in order to properly finish the operation. Two weeks after the primary operation the wound was

very large and lined with healthy granulation. He was taken to the hospital, anesthetized and the plastic operation as here described was made. He returned to his home the same afternoon.

Figure 5. Flap being turned under bridge tissue and all parts forcibly shoved over and into the mastoid wound.

Figure 6. Denuded edges of mastoid wound being brought together, also suturing of the primary incision.

On the third day the wound was inspected at the office; everything was in good shape. I did not see the boy again until a week later. When he came to the office he had stitch abscesses and the wounds

showed the result of neglect, being bathed in pus. The stitches were removed and the wound properly dressed. The next day the wounds were almost dry.

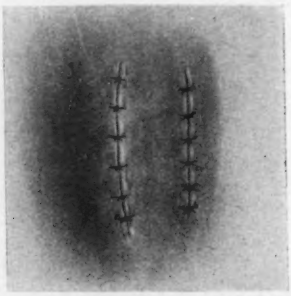

Figure 7. Final appearance after closure of both mastoid opening and the primary incision.

Figure 8. Taken one month after mastoid operation, two weeks after plastic. Specks on dried scales not cleaned off before picture was taken. This was a very large mastoid in which a linear incision backward had to be made at time of operation. Three weeks after plastic the scars were hardly noticeable.

Improvement continued rapidly until he was able to go without any dressing in a few days. The appearance two months later is excellent, the mastoid feels firm, no tenderness, only a small crease at the anterior wall along the line of incision is to be noticed, the second wound being hardly discernible.

NOTE.—In two subsequent operations removal of the periosteum with the flap and bridge proved satisfactory.

THE OCULAR SYMPTOMS OF BRAIN ABSCESS AND SINUS THROMBOSIS OF OTITIC ORIGIN, WITH REPORT OF A CASE.

Dr. G. B. Jobson, Franklin, Pa.

It is conceded by most authorities that difficulty is encountered with the certain localization of brain abscess and sinus thrombosis, especially in complicated cases.

This was forcibly impressed upon me when, after consulting many writers, I erred in the diagnosis of a complication in case of otitic origin, which ended fatally. Although the case was unique and quite out of the ordinary, I am led to believe after a painstaking search of the literature on the subject, that many of the writers along this line have accepted the work of a few, instead of holding autopsies whenever possible on the cases which ended fatally, and reporting their findings.

It is not my intention to treat the subject of ocular and orbital symptoms in brain abscess and sinus thrombosis in an exhaustive manner, but merely to bring to your notice the principal ones, with the hope that the discussion which follows will assist in establishing the differential diagnosis and more certain localization of brain lesions complicating aural disease. Absence of ocular symptoms does not justify the exclusion of intra-cranial involvement but when considered in conjunction with other symptoms is a valuable guide to a timely operation. Choked disc and optic neuritis, which are by some used interchangeably, are the earliest and most important ophthalmic evidences of intra-cranial involvement. There is, as yet, no universally accepted theory as to the nature of the origin of choked disc and optic neuritis. It is still unsettled whether the cause is by engorgement or by inflammation.

The principal differences between optic neuritis and choked disc according to A. Adam, in his "Ophthalmoscopic diagnosis," are:

1. In choked disc, the veins are greatly distended and tortuous while the arteries are contracted and show broad reflex stripes. In optic neuritis the arteries are nearly normal, the veins being overfilled.

2. The optic nerve-head in choked disc forms a marked elevation, grayish or reddish gray in color. It cannot be demarcated

from the surrounding retina which is likewise cloudy and gray. The disc appears striated and the tortuous vessels dip beneath it in places. In optic neuritis the nerve-head is but slightly elevated.

3. Vision in choked disc may be normal for a time, while in optic neuritis it is much impaired.

4. The field of vision in choked disc may be normal or show concentric contraction. Central scotoma is present in optic neuritis.

Schmidt and Manz base their engorgement theory upon the anatomical arrangement of the optic nerve, the three sheaths of which are continuous with and correspond to the brain coverings. The pial sheath is closely attached to the nerve, while the dural covering is much thicker and is separated from it by the inter-vaginal space which contains the delicate arachnoid membrane, floating in the cerebrospinal fluid.

The optic nerve is thinnest at its entrance into the sclera, where the nerve fibers loose their medulla and where the nerve becomes constricted in its passage through the lamina cribrosa. The inter-vaginal space ends by a cul-de-sac within the sclera; and the engorgment-advocates contend that increased intra-cranial pressure will project the cerebrospinal fluid into the inter-vaginal space with sufficient pressure to constrict and strangulate the nerve and vessels, and that papilledema is the result.

The men who maintain the engorgement-theory claim to confirm it by saying that decompression of the skull causes rapid subsidence, in many cases, of choked disc and optic neuritis. The engorgement theory is questioned by Hughlings, Jackson, Gowers, Leder, Elshing and others, who say that choked disc, and optic neuritis are inflammatory in character, and that the cause is, from the irritation produced by metabolic substances projected into the cerebrospinal fluid of the inter-vaginal space, from the brain.

A recent theory[1] evolved is, that increased intra-cranial pressure and inflammatory changes in the cerebrospinal lymph cause blockage of the perivascular lymph tracts of the central vessels and produce a stasis in egress of intra-ocular fluids, all of which soon leads to inflammatory phenomena.

And it is further contended that the increased pressure within the subvaginal spaces does not produce stasis through compression of the lumen of the central vessels. The same authority says, "that we know that the ophthalmoscopic differences are artificial, and that cases associated with high intra-cranial pressure may present only a slight disc-change or none at all, while meningitis, pyemia

and intoxicants are associated with descending neuritis, and without other evidence of increased intra-cranial pressure may present the typical appearance of choked disc, so that we no longer attempt to make an opthalmoscopic and etiologic diagnosis between "descending neuritis" and "choked disc."

The pyogenic process[2] ending in brain abscess, particularly when due to ear troubles, shows itself in three stages. They are:

1. The inflammatory or febrile stage, when the patch effected is in the stage of "red" softening, and the symptoms are those of

Figure 1. Author's case of right temporo-sphenoidal abscess. The condition of the left eye resembles that produced by left cavernous sinus thrombosis.

irritation, which lasts, as a rule, a few days, but at times is prolonged into a week, and usually follows the sudden cessation of aural discharge. The general symptoms are influenzal in character. There is as yet no optic neuritis, and the pupils react to light and accommodation.

2. The manifest or early purulent stage is one of pressure, in which the symptoms of the first stage have remitted, and slowing and lowering of the mental and physical functions are prominently noted. Optic neuritis has developed and advances rapidly, and is

perhaps more apparent on the diseased side. Choked disc is more often seen in cerebellar abscess than optic neuritis. The pupils are sluggish or altogether inactive.

3. The terminal, toxemic or paralytic stage is one of pressure with great toxemia, and the deepening coma and general convulsions betoken an early fatal issue. Optic neuritis may be intense, the pupils are quite insensitive to light, and are either contracted or dilated, and unequally so. The state of the pupils helps one to locate the side on which the abscess is situated. If they are unequal the probability is that the abscess will be found on the side of the more widely dilated pupil. If both pupils are widely dilated the abscess is usually rather large. As the pupils become sluggish or immobile, a fatal termination may be expected. Contracted pupils, with insensitiveness to light, has been seen in a few cases, and indicate that the disease is in an advanced stage and that the pus will be green and offensive. Photophobia and diplopia are occasional symptoms.

Optic neuritis requires time for its development, and it does not appear inside of ten days. Optic neuritis may be progressing when other signs and symptoms of brain abscess are in abeyance. The absence of optic neuritis does not negative cerebral abscess, and its presence does not by any means make its diagnosis certain. Its value as a symptom is that if present only on one side, or if more marked on one side, that side is probably the site of the lesion. The rule is not absolute, as Uhthoff has noted optic neuritis on the opposite side from the abscess.

When the abscess is situated beneath the tentorium, choked disc is more frequent and severe than when it is located in the cerebrum. Uhthoff mentions that unilateral neuritis has been observed on the side of the healthy ear. This must be unusually rare, as Uhthoff is the only one who speaks of it as far as I know. The case which I will describe later showed optic neuritis on the opposite side from the abscess.

Pathologic eye changes occur in about two-thirds of the cases of sinus thrombosis of otitic origin. Involvement of the lateral sinus may show choked disc or optic neuritis on the affected side, or bilaterally. If there is an extension to the cavernous sinus, the eyeball on the diseased side will be chemosed and proptosed; the pupil dilated and stabile; the cornea hazy and dry, makes ophthalmoscopic examination difficult or impossible, but optic neuritis is likely to be present and the lids of the affected side become edematous. The remaining cranial sinuses are not usually infected from

disease of the ear, except as an extension from the lateral sinus.

Case 1: Mrs. H., aged 28 years, seen in consultation with Dr. Blair, the family physician, May 9, 1910. Purulent and foul discharge from left ear since childhood. Left ear contained a small quantity of fetid pus. Membrana tympani had disappeared. Probe detected bare bone in roof of middle ear. Hearing dull on left side; on right side, hearing was normal; mastoid slightly swollen. Symptoms:—Severe and constant pain on left side of head for past three days. Mastoid tender on percussion. Temperature 99.4°F., pulse 104. Operation May 10. Slight mastoid necrosis. A sinus was traced through the tegmen antri and disclosed an extra-dural abscess, which was evacuated, and on probing gently, there seemed to be a communication with the lateral sinus region. The lateral sinus was exposed, a perisinus abscess was encountered and the pus removed. The lateral sinus was opened, but was not thrombotic.

After the operation the patient was comfortable, and the temperature ranged from 99° to 100°F. until May 14, when it suddenly rose to 103°. Pulse 134, nausea, chill and pain in head and on left side of neck. Operation:—Exposure of lateral sinus disclosed nothing. The jugular vein was uncovered and seen to be thrombosed. The phlebitic vein was exsected. The patient got along nicely and was discharged from the hospital June 4, 1910. On June 13, 1910, the patient complained of right-sided headache and nervousness. Pulse 120, temperature 100°F. The right drum and mastoid were normal. Left side had nearly healed, and was healthy.

June 13, there was irritability alternating with dullness. The vision of the left eye was complained of, an ophthalmoscopic examination revealed chocked disc. On the following day the eye was chemotic, patient very inattentive and showed slowness of thought. June 15, the left eye was proptosed, lids edematous and media hazy, left pupil dilated and stationary. Right eye normal. June 16, the nasal sinuses were examined, and found to be normal. Temperature 99°F., pulse 98. The left eye was greatly proptosed, lids quite edematous, cornea dry and hazy. Fundus of right eye showed slight optic neuritis. Patient very dull and apathetic.

The head was trephined on left side, one and a quarter inches above the meatus. The dura bulged but was normal in color. It was incised and the brain probed with a narrow-bladed knife in various directions to a considerable depth, with the escape of a small quantity of cerebrospinal fluid. No pus was found. The

patient grew gradually worse and died on June 21. The temperature during the interval ranged between 98° and 100°F. Pulse between 82 and 108. Two days before death there was beginning left hemiplegia, the right pupil was dilated and fixed, It was at this stage that a right cerebral abscess was suspected, but the patient was too far gone for an operation.

Autopsy:—The left side of the brain showed no signs of the trouble. The cavernous sinus was examined carefully and found normal. A right temporo-sphenoidal abscess with pus, greenish in color, and with fetid odor was encountered. The abscess was about the size of a hen's egg. The left optic nerve and its optic tract showed inflammatory signs. The optic neuritis must have been caused by extension from the primary focus in the brain. The abscess was metastatic, as the right ear was normal.

This case shows the difficulty in localizing a brain abscess in a complicated case, and was unique in that the left eye-signs simulated cavernous sinus thrombosis.

BIBLIOGRAPHY.

1. WOOD: American Encyclopedia of Ophthalmology.
2. DR. JOHN WYLLIE.

Efficacy of Vaccines in the Treatment of Chronic Diphtheria Carriers. ARTHUR I. WEIL, *N. Orleans Med. and Surg. Jour.*, Nov., 1914.

Stock vaccines were first used beginning with 20 to 40 millions and increasing the doses every day until 400 million was reached. After an interval of twenty days, treatment was renewed in the uncured cases with a mixed autogenous vaccine, that is, one obtained from a mixed throat culture from several of the patients. The dosage was begun with 300 millions and rapidly increased to 1400 millions. The negative cultures which were later found in these cases were attributed by the author to these treatments.

SCHEPPEGRELL.

SYMPTOMS AND DIAGNOSIS OF LARYNGEAL TUBERCULOSIS.*

DR. E. FLETCHER INGALS, Chicago.

For the detection of the earliest manifestations of tuberculosis, it is important that the physician should be an expert diagnostician in diseases of the nose, the throat and the chest, otherwise he is liable to error at the very time when his knowledge would be of the greatest service to the patient.

Later in the disease, the well-qualified general practitioner will only rarely find much difficulty in making a correct diagnosis; but even then, there are some cases in which the evidence is very confusing, so that it may be difficult to decide between certain cases of simple chronic catarrhal inflammation, malignant disease, syphilis, lupus and tuberculosis.

This statement applies largely to diseases of the upper air passages only, but it is also often true of the manifestations of disease of the lungs.

The physician should begin his examination with a careful analysis of the history including heredity from the early childhood of the patient, for not infrequently the hereditary tendency or the effects of some previous disease may prove one of the vital factors in the evidence, and occasionally even peculiarities of absolutely healthy individuals must receive judicious consideration before a correct decision can be formed. I cannot too strongly insist upon these statement but I will not take your time by going into detail. I will confine myself to the more salient features of the diagnosis.

Having critically considered the history and subjective symptoms the physician should address himself to a careful examination of the objective signs of departure from health, never forgetting the normal variations from the typically perfect form. As an illustration of the need of this latter precaution in diagnosis, I may mention one of the common errors by those who specialize in diseases of the nose. In examining the naris they find a more or less prominent spur projecting from one side of the septum and many at once decide that it should be removed, totally ignoring the fact that such obstructions are present in 50 per cent of the Caucasian

*Presented at the meeting of the Robert Koch Society for the Study of Tuberculosis, Chicago, October 29, 1914.

race and that in nearly all of these they have not the slightest effect upon the individual's health or happiness, if they are let alone.

The early symptoms of tubercular laryngitis are like those of an ordinary cold, which continue for several weeks, usually attended by hacking cough but with little or no expectoration. These symptoms may continue for several months before they attract serious attention. Early there is sometimes a peculiar weakness of the voice and often the patient is hoarse. There is loss of strength and weight, hardly appreciable in the beginning, usually attended by some rapidity of pulse and often by slight elevation of temperature in the afternoon, from 0.5° to 1° F.

As the disease progresses the symptoms become more and more pronounced and the patient usually develops the symptoms of pulmonary tuberculosis. Emaciation follows, the appetite is impaired and progressive weakness occurs, cough is more frequent and productive and if ulceration takes place pain in the larynx is generally experienced in swallowing, and tenderness may be present on palpation. In some advanced cases with extensive ulceration, the dysphagia becomes most distressing, often so great that the patient will gradually starve rather than eat; but the amount of pain depends largely upon the location of the ulcer. Sometimes a large ulcer may cause but little inconvenience while a small one located differently may be very painful.

The pulse in advanced cases usually runs from 120 to 140 per minute and daily, afternoon fever of two or three degrees is common; the skin is sallow, hot and dry, or at times, especially at night, bathed in profuse perspiration.

In nearly all cases of laryngeal tuberculosis, superadded to the laryngeal symptoms are those of pulmonary tuberculosis which generally precedes the laryngeal trouble; however, the latter may often be detected before the pulmonary signs have attracted any attention.

In advanced cases, dyspnea is often present, generally due to weakness and pulmonary involvement; but in a small percentage of cases it results from swelling with obstruction of the glottis. When swelling of the upper part of the larynx prevents its closure during deglutition, fluids leak into the trachea and cause distressing spasms of cough. The tenacious secretions, during the later stages, often cause a very annoying and sometimes painful cough that is frequently productive of vomiting and thus hastens the progressive emaciation and adynamia.

Anemia of the mucous membrane of the nasal cavities but more especially that of the palate is often one of the earliest signs of the disease.

The larynx itself may be either pale or of a dull-red color, but the congestion is very rarely of the bright color that characterizes acute and sometimes chronic catarrhal laryngitis; and it also differs from the dull-red color found in most malignant affections of the organ.

One very suggestive sign that marks the very beginning of a limited number of cases of tuberculosis of the upper air passage is a peculiar thinness, or atrophy, of the laryngeal walls which may appear not more than a third to half as thick as normal. This condition when present and associated with the pallor already referred to, is almost pathognomonic. In some cases a diffused, dull congestion, not only of the cords but of the upper part of the larynx coupled with diffuse or local thickening of from 25 to 50 per cent is one of the signs that appear during the first year. This is attended by sluggish movements of the cords which cause the hoarseness.

Impaired mobility of the larynx due to involvement of the muscles, associated with feeble voice and some hoarseness, sometimes appears to be one of the first evidences of tubercular laryngitis, but the sign is not characteristic and must not be given weight excepting as associated with other signs.

During this early stage, elimination of gastro-intestinal and renal diseases and critical examination of the lungs, aided by the tuberculin tests, are most important in reaching an accurate diagnosis. Later pale, dense swelling of the epiglottis and the characteristic pyriform swelling of one or both ary-epiglottic folds; and the thickened posterior commissure, bathed in grayish mucus or a more yellowish muco-pus are pathognomonic. The swollen parts occasionally appear much like edema but in nearly all cases the observer gets the impression of solidity of the parts. Only one of these parts may be swollen, but usually two or more are involved. With this condition ulceration is usually present.

The ulcers are generally superficial, 1 to 2 mm. deep, with worm-eaten edges and irregular, yellowish-gray surfaces. The ulceration commonly begins on the ventricular band and soon involves the opposite side, the posterior commissure and the true cords. It is significant that in tuberculosis ulceration ordinarily begins at the lower part of the larynx, while in syphilis it is apt to start on the epiglottis.

	Chronic catarrhal Laryngitis.	Syphilitic Laryngitis.	Cancer of Larynx.	Lupus of Larynx.	Tubercular Laryngitis.
History.	Of repeated colds.	Of syphilis if we can get the truth.	Gradually increasing hoarseness.	Negative.	Gradual impairment of voice and slight constitutional disturbance.
Weakness, emaciation, fever.	Negative.	Early negative.	Negative until late in disease.	Negative for years.	Early slight; become more marked in a few months.
	Usual but variable.	Usually after a few weeks.	Commonly an early symptom.	Occasionally present, commonly absent.	May be slight or absent for a few months. Later persistent and progressive.
Hoarseness.	Common, often paroxysmal.	Not significant.	Not significant.	Not significant.	An early symptom—usually hacking and persistent.
Cough.	Negative.	Often none, seldom severe.	Negative early in most cases. Later common.	Negative.	Negative during first few months. Persistent and severe later—after ulceration.
Pain.	Uniform, bright congestion; moderate thickening of cords and possibly walls of larynx.	Dull congestion and thickening, especially of epiglottis. Ulceration begins early, usually at upper part of larynx. Scars often found in fauces.	Localised—usually unilateral induration and thickening of a dull-red color. Usually involves vocal cord and parts just above it. No cicatrices.	Scars where healed. Thickening; one or more nodules usual on surface or edge of ulcer.	Early, sometimes pale and atrophied; usually localized, dull congestion and thickening of the aryepiglottic folds, and of epiglottis. This is semi-translucent, but appears solid as compared with edema. Disease usually begins at lower part of larynx.
Color and form.					
Ulceration.	Absent.	Common in tertiary. Ulcers progress rapidly—3 or 4 mm. deep—sharp, punched-out edges. Tendency to heal under proper treatment.	Usual after 3 to 5 months—gradual destruction—no tendency to heal.	Always present—indolent—nodules on surface or edges.—tendency to heal at one part while progressing elsewhere.	Superficial grayish-yellow ulcers, 1 to 2 mm. deep, irregular wormeaten edges and surface. Very little tendency to heal unless marked constitutional improvement occurs.
Tests, etc.		Therapeutic and Wassermann tests.	Possibilities of Abderhalden reactions.		Tuberculin tests and pulmonary involvement.

In a small percentage, tubercular ulcers may be 3 or 4 mm. in depth, like specific ulcers; but I do not remember having seen any of them with the sharp or undermined edge so common in syphilis. Not infrequently there are tuberculomata of a cord or of the posterior commissure. These are apt to have an ulcerated surface. I have occasionally seen an acute, tubercular, follicular inflammation of the epiglottis characterized by dull congestion and swelling, with several yellowish-gray patches, in appearance much like those of follicular tonsillitis. This is usually attended by much pain and in my experience has commonly been followed by rapid superficial ulceration spreading from the various points.

The symptoms and signs I have mentioned will be sufficient to establish the diagnosis in the great majority of cases, but there are very rare cases in which syphilis and tuberculosis are combined. that will demand a most searching examination.

In other cases, of comparative frequency, we must distinguish between chronic catarrhal laryngitis, syphilitic laryngitis, lupus, cancer and tubercular laryngitis. The salient features of these various affections are most effectively presented in tabular form.

104 South Michigan Avenue.

Method of Closing Perforations of the Septum. W. L. Simpson, *Jour. A. M. A.*, July 4, 1914, p. 30.

Simpson describes a method of transplantation of cartilage or bone to close a septal perforation in the nose. The cartilage or bone gives a support and a place for attachment for the flap of mucous membrane and this prevents the retraction which is so liable to occur without some support. Before he tried this method his results in the closure of perforations were almost invariably bad, but since he has adopted it he has had very gratifying results. As a general rule the large piece for transplantation would be taken posteriorly to the perforation but if a large piece of cartilage or bone is difficult to obtain in this way it is a good plan to transplant from another deflected septum in which a submucous operation is being made.

REMOVAL OF AN OPEN SAFETY-PIN FROM THE ESOPHAGUS UNDER SUSPENSION.

DR. WM. B. CHAMBERLIN, Cleveland.

The following case is of interest as it is the first one to my knowledge where an open safety-pin has been removed from the esophagus under suspension. At least, I have been unable to find any report of a similar case, in a rather careful review of the literature. It illustrates to a further degree the usefulness of the suspension apparatus.

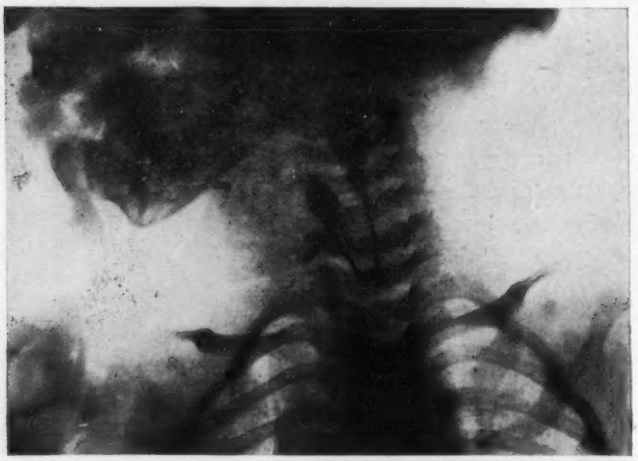

Figure 1.

Baby B., aged 11 months, was referred to me by Dr. Ernest H. Brooks, with a history of having swallowed an open safety-pin about one hour before. The x-ray showed the pin at the upper end of the esophagus. Although I had never made use of the suspension apparatus in a case of foreign body, I determined to try it in this case and fall back upon the esophagoscope if the pin were too far down.

The child was accordingly anesthetized and placed in suspension. On examination and previous removal of a considerable quantity of mucus, the tip of the head of the pin could barely be made out. The x-ray had shown that the head of the pin lay to the child's right, the

point, directed upward, to the left. The head was accordingly grasped with a Killian baby forceps held in the left hand and pushed firmly to the left; thus partially rotating the pin. Still maintaining the hold on the head with the forceps in the left hand, the shaft of the pin was grasped between the head and eye by a second forceps in the right hand and complete rotation accomplished. The pin was now grasped by the eye and easily removed. There was absolutely no laceration of the tissues, while the time of the entire operation, after placing the child in suspension, was less than two minutes. The baby was returned to its home within a few hours and made an immediate and complete recovery.

The above case is but another instance of the advantage to the operator in having both hands free for manipulation and operating.

614 Osborn Building.

Present Status of Treatment of Laryngeal Tuberculosis in the Massachusetts State Sanitorium. ALBERT C. GETCHELL. *Boston Med. and Surg. Jour.*, July 2, 1914.

The author discusses first the provisions made for careful examination of the larynges in the different state sanitoria. In his personal examination of the laryngeal complications from month to month he has noted that the local condition goes generally hand in hand with the general. Though the symptoms are closely allied to those of syphilis, it should be remembered that the disease travels along the surface by contact in tuberculosis, and local cleanliness thus becomes a more important part of the treatment. In the question of operative interference, the author again reminds us that the disease is only a part of the general disease, and that the eradication of the local condition by no means controls the process; and that only in rare cases does an operation aid, and then only in skilled hands. As to the need of specialists to watch the throat condition, it is contended that this can be better done by the resident physician who should make the throat examination a routine part of the general investigation, and by practice can learn to recognize the finer shades of advancing tuberculosis better than can the laryngologist with no especial training in this particular field.

BERRY (MOSHER).

ABSCESS FOLLOWING TONSILLECTOMY UNDER LOCAL ANESTHESIA.

Dr. D. A. Vanderhoof, Colorado Springs.

Mr. N., age 23, well built and in perfect health, came to the office on November 10, 1914. He had had tonsillitis for the last few years; so wished to have his tonsils removed before the cold weather set in.

Upon examination the tonsils were found to be very large, soft, and extending low down. Otherwise everything was normal.

On November 17, 1914, he was operated on at Bethel Hospital under local anesthesia. The regular routine was followed, using about 30 drops to each tonsil of approximately a 1:10,000 solution adrenalin and a 2 per cent solution novocain. The tonsils were dissected out by sharp dissectors and removed with the Tydings snare, leaving a perfectly clean base. There was nothing abnormal about the operation and the patient returned to his residence on the second day.

Up to the fifth day (November 22) his condition was apparently normal, the membrane covering the operative area was disappearing and the throat looked fine in every respect. On the evening of the fifth day he telephoned that his jaw was sore on the left side, and wished to know if there was anything he could do at home. As it was causing no special inconvenience I advised him to do nothing but to report at the office next morning.

Upon examination the tonsils were found to be very large, soft, about 30 drops to each tonsil of approximately a 1:10,000 solution about the operation and the patient returned to his residence on the the fifth day he telephoned that his jaw was sore on the left side, perfectly normal. But for all this he complained of a stiffness of the jaw on that side. I applied lugol solution gr. IV to the oz. over the operative area on that side and asked him to report next morning.

November 24, he could only open his mouth half the normal distance. There was also slight swelling and tenderness over the submaxillary gland. Temperature 99.2°, pulse 80. Urine negative.

November 25, patient could open his mouth a very little but I managed to see that the post-operative area looked perfectly clean and normal. He slept very poorly last night and had considerable

pain under jaw and in neck on that side. Temperature at this time was 100°.

Cold applications were applied externally for a few hours but as he complained so strenuously this was discontinued, and a 25 per cent ichthyol ointment was applied instead. Hot antiseptic gargle was used at frequent intervals and at night phenacetine and verenol of each gr. IV was given for restlessness. Bowels and kidneys were looked after and kept in good condition.

From November 24 to December 3, there was very little change in his condition except that by December 3 the swelling had almost closed his left eye and on this morning there was considerable swelling under the inferior maxilla on the right side.

The swelling itself appeared very hard and tense and no area of fluctuation could be found. Temperature 102°, pulse 100, urine negative. Blood count by Dr. Trossbach showed: Leucocytes, 28,400. Polys, 82 per cent. L. L., 11 per cent. S. L., 3 per cent. Monos., 1.5 per cent. Trans., 1.5 per cent. Eosin., 1 per cent.

Dr. Martin, the family physician, was called in consultation at this time. As the blood count showed a leucocytosis it was decided on account of his general condition to search for the abscess which was undoubtedly present. A hypodermic needle was inserted under the jaw over the region of the submaxillary gland, and deep in this region pus was found. This was at once evacuated and a drainage tube inserted for twenty-four hours. The swelling from this time slowly receded.

December 5. About 9:00 a. m. there was a sudden discharge of foul pus into the throat, which immediately relieved the slight dyspnea which had been present for the last twenty-four hours.

A smear of pus from outside of neck on left side showed: Polynuclear pus cells—bacteria mostly intra-cellular, namely, uniformally staining bacilli, long varieties; also some shorter, thicker and more deeply staining kinds, staphylococci and a few diplococci. No T. B.; no Strep; no Vincent's angina.

December 6. Patient could open his mouth just enough so that a view could be had of the tonsillar area, which appeared perfectly normal. During the external dressing on this date it was found that there was an opening from the external wound into the throat. The opening into the throat was in the lower part of the operative area on the left side. A smear was made from the operative area on left side. This showed few pneumococci; no T. B.

December 7. The connection between the external wound and throat was entirely healed, and the external wound itself was clos-

ing rapidly. December 10. External wound entirely healed and patient had apparently recovered without any ill-effects excepting a loss of fifteen pounds in weight.

The question of the mode of infection in this case, as in all cases, is of interest. Was it due to an infection from without, or could it not have been caused by the injection of too much of the solution in a small area, thus lowering the vitality of the tissues to such an extent that this small area became an easy prey to micro-organisms?

1709 North Nevada Avenue.

Use of Abderhalden's Dialyzing Test in the Treatment of Otogenous Intra-cranial Complications. DR. ALFRED ZIMMERMAN. *Zischr. f. Ohrenh.*, Bd. 71, Heft 3-4, 1914, p. 133.

The diagnostic brain center of the coming otologist is bound to atrophy. The roentgenologist wishes to usurp the indications in mastoid surgery. The writer of this article hails the laboratory as the supreme court in deciding the differential diagnosis of otogenous brain complications. In the serum of an animal, whose brain or nerve tissue was experimentally injured, or of a patient suffering from an affection of the brain, protective ferments are found that in Abderhalden's dialyzing test decompose brain or nerve tissue. A negative Abderhalden test excludes absolutely brain abscess and probably meningitis. A positive Abderhalden leaves the otologist the choice of one of the following conditions: extradural abscess, diffuse or localized, meningitis, sinus thrombosis, brain abscess, encephalitis, paralysis, epilepsy, dementia, etc. It is, however, necessary to decide upon the diagnosis before the patient is operated upon, as narcosis by itself produces such cerebral changes that the Abderhalden test becomes positive. For this reason the writer had to operate upon his animals without narcosis, a "barbarian" procedure that could not be repeated in our sensitive community of anti-vivisectionists. We regret with the writer that Abderhalden's test does not allow of a different diagnosis between cerebral and cerebellar abscess; in both instances the serum decomposes any kind of nerve tissue. GLOGAU.

AN INTRA-NASAL OPERATION, WITH A GUIDE FOR THE CURE OF DACRYO-CYSTITIS.

Dr. Frank M. Hanger, Staunton, Va.

Many operations have been devised for the cure of dacryo-cystitis, after failure to relieve the trouble by the usual and rational method of slitting the lower canaliculus, and the use of probes of increasing size to overcome the strictured condition of the nasal duct;—this, of course, to be accompanied by proper irrigation and medication. As a large per cent of such cases are thus cured, no intra-nasal operation is justified, until this method has been faithfully tried.

We must established drainage from the lacrimal sac into the nose, in order to effect a cure, or else extirpate the sac. The latter is a mutilation and a surrender to a condition, and leaves the patient with an annoying epiphora and a disfiguring scar.

A brief mention will now be made of the merits and demerits of a few of the most commonly used operations for the relief of dacryo-cystitis. Toti's operation is not, strictly speaking, intra-nasal, as it is done from the outside and consists of making an opening just opposite the lacrimal sac, through the bony wall down to the mucous membrane of the middle meatus. A hole is then made into the sac and one in the nasal mucous membrane and the edges of the openings united by means of fine sutures. Thus a direct communication is established between the sac and the nasal chamber. This operation is much lauded by some, and certainly affords temporary relief, but it leaves a scar at the side of the nose, and, in many cases, the opening in the bony wall slowly closes and the old cystitis recurs.

Some operators advocate removing the anterior third of the inferior turbinated bone and chiseling away the bone over the nasal duct, then opening and curetting the mucous lining from the duct and lacrimal sac. It is difficult and almost impossible to remove thoroughly the mucous membrane from the sac, by this method; and, if it is accomplished, it is merely an obliteration of the lacrimal sac from within and leaves the patient with an epiphora, as is the case in extirpation of the sac from without. "The window resection of the lacrimal canal," by West, is done in the middle meatus, and no part of the inferior turbinated bone is

sacrificed. The ascending process of the superior maxillary bone and the lacrimal bone are chiseled away and the lacrimal sac exposed and an opening made into same. It is virtually the Toti operation done intra-nasally, although no effort is made to unite the mucous lining of the sac to that of the nose by means of sutures. It is open to the same objection as in the Toti operation, —i. e., the fenestrated opening is apt to close; although West claims to cure ninety per cent of his cases.

The Yankauer operation is a good one, but the technic is delicate, and the author makes difficulties for himself in his effort to

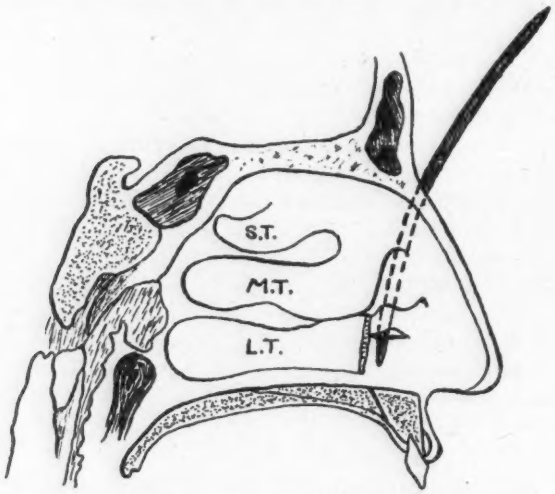

Figure 1 shows the front third of the lower turbinated bone cut away and the probe in the nasal duct; the end is seen in the lower meatus.

preserve "the long arm of the lacrimal syphon," a term which he applies to the nasal duct, for drainage purposes. For a syphon to act, the long arm must be full of fluid and the flow must be constant. The large size of the normal nasal duct and the small quantity of tears which pass through it disprove the syphon principle on which the author lays so much stress. Besides, ample drainage takes place in the West and Toti operations as long as the artificial opening made into the lacrimal sac remains patulous. For these reasons we must infer that the capillary attraction of the canaliculi, the action of the ciliated epithelium of the mucous membrane which lines the lacrimal passages, and the action of the orbicularis pal-

pebrarum and Horner's muscles, to say nothing of gravity, explain fully the drainage of the tears into the nose.

Yankauer, in order to preserve "the long arm of the syphon," dissects up an irregular muco-periosteal flap from the inner surface of the anterior third of the lower turbinated bone and from over the site of the nasal duct. He then separates and preserves the muco-periosteum from the outer surface of the lower turbinal for one-third of its extent and removes the denuded bone as far back as the posterior margin of the nasal duct. The inner wall of the nasal duct is then removed up to the level of the attachment of

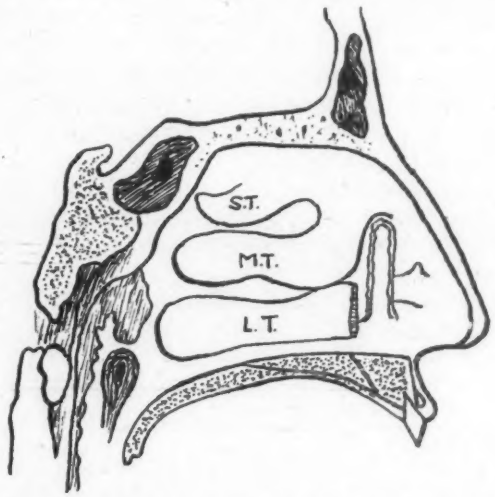

Figure 2 shows the open gutter and the operation completed.

the middle turbinal, with the chisel and a specially devised forceps.

While doing this he takes special care to preserve the integrity of the membranous lining of the duct by first separating it from the bone by means of a right-angled probe or elevator. Where there is no stenosis of the neck of the sac he slits up the membranous duct with scissors, as far back on its inner wall as possible, and brings that part in front of the incision forward and lays it against the bone.

If there be stenosis, which is generally the case, he opens the sac with a hook-shaped knife from above down to the stricture. A right-angled probe is then inserted into the sac, with the point

downward, and adhesions separated and the neck of the sac opened with scissors or a small knife.

The mucous membrane of the outer nasal wall, which during the operation has been tucked under the middle turbinated bone, is now brought forward to its original position and held in place at its anterior inferior border with a single suture. All of this technic sounds easy but is most difficult to execute and is the result of the author attaching too much importance to the preservation of "the long arm of the lacrimal syphon."

Before recommending the operation herein set forth for the cure of dacryo-cystitis, the author of this paper pre-supposes that an effort has been made to relieve the condition by the usual means of probing the nasal duct with probes increasing in size to ones fully as large as Theobold's No. 12 or 13, and failure has resulted from this method. The operation is an office one, and is done with cocain and adrenalin,—the patient being seated in a chair with a head-rest.

First, a few drops of equal parts of a twenty per cent solution of cocain muriate and adrenalin chlorid 1 to 1000 are injected into the lacrimal sac. There is no danger of the solution entering the nose because of the stricture usually found just below the sac. Then, a small lacrimal probe so moistened that pulverized cocain will adhere to it is passed into the sac and the cocain worked down in the nasal duct as far as the stricture. In a few minutes the whole canal will be so anesthetized that larger and larger probes can be passed into the nose until Theobold's No. 13 can be passed without pain.

This probe is left *in situ* and is your guide during the operation within the nose. The inferior turbinated bone and the site over the nasal duct are then rapidly and thoroughly cocainized and adrenalinized with a cotton swab, special care being given to the under-surface of the inferior turbinated bone. Then the front attachment of the inferior turbinated bone is severed with Struycken's nasal forceps and about one-third of the bone cut away with a small Hartman tonsil punch. The lower end of the probe, your guide, is now seen in the lower meatus.

As the lower front part of the bony nasal duct is thick and hard it may be necessary, but not always, to cut this away with a curved or angled chisel or gouge, in order to use to advantage the curved right-angled punch-forceps with which the operation is rapidly completed. It is best for an assistant to hold the speculum when the chisel is being used, a Myles speculum being the best. The

lacrimal probe or guide is now slowly withdrawn upward, while the male blade of the punch-forceps follows in its wake and bites away, at several bites, the inner wall of the nasal duct up beyond the stricture; thus converting it into an open gutter and the operation is finished. The punch-forceps are best made in curved rights and lefts with a universal handle similar to some antrum forceps; yet, straight forceps can be used.

This part of the operation can be done entirely with the chisel and gouge, as the guide protects at least two-thirds of the lumen of the duct and prevents the possibility of wounding the maxillary antrum or the ethmoidal cells which lie respectively to the outer side and behind it. The gutter can be extended up into the sac, if necessary. However, it should stop just beyond the stricture which can be determined by the ease with which the probe or guide can be re-introduced into the nose. This is an easy and common-sense operation, being somewhat similar to a urethrotomy with a guide, and can be performed painlessly, bloodlessly, and by any operator who possesses only a slight degree of skill. It is best to pack the nose with a strip of gauze, for twenty-four hours, to restrain hemorrhage and irrigate the lacrimal sac for a few days. Water should pass easily into the nose and drainage of tears should be perfect in a week's time, if not sooner.

Room 11, Crowle Bldg.

Interesting Case of a Foreign Body in the Larynx. LOUIS DUCUING, *Rev. hebd. de Laryngol.*, June 6, 1914.

While a child of 6 years was playing with a horn, it inhaled the reed into its larynx. Dyspnea developed to such an extent that preparation was made for tracheotomy when the patient suddenly ceased breathing, so that a rapid intercrico-thyrodian tracheotomy was rapidly performed, after which the child was restored by artificial respiration.

A careful examination failed to show the foreign body in the larynx, but was subsequently found in a mass of mucous which the child had expectorated just prior to the attack of cyanosis.

SCHEPPEGRELL.

A CASE OF DACRYOCYSTO-RHINOSTOMY.

Dr. Otto Glogau, New York City.

In former years the treatment of suppurative dacryocystitis consisted in the removal of the afflicted lacrimal sac. The operation was exclusively performed by the ophthalmologist, as the diseased structure was considered to be an appendix of the eye. Due to the pioneer work of Onodi and others, our opinion as to the topographic and operative anatomy of the lacrimal sac has undergone a radical change. Modern rhinology considers the lacrimal sac a nasal accessory cavity that empties into and should therefore be attacked through the nose. Besides avoiding the disfiguring scar of the old, external method, the intra-nasal route is the more logical procedure. The removal of the sac obliterates for ever the channel through which the tears should drain into the nose and the annoying symptom of epiphora persists even to a greater degree. Besides, in most instances the suppuration is due to a primary constriction below and to a consequent stagnation and infection of the fluid within the sac.

No surgeon would attack a pyloric carcinoma without connecting the stomach with the intestines by gastro-jejunostomy. Mutatis mutandis, there is some similarity between the passage of the tears and that of the food. The eye may be compared to the mouth, the canaliculi to the esophagus, the lacrimal sac to the stomach, the naso-lacrimal canal beneath the sac to the pylorus and duodenum, the nose proper to the intestines. The equivalent to gastro-jejunostomy in the one condition is dacryocysto-rhinostomy in the other. Thus the muscular suction-apparatus for the drainage of the tears is preserved and keeps up or rather regains its function.

Some years ago Toti described a method of connecting the lacrimal sac with the nasal cavity by the external procedure.

After exposure of the sac, a small, round piece is removed from its inner wall. Corresponding to this aperture, the adjoining part of the frontal process of the upper jaw-bone is chiseled away and the nasal mucous lining beneath is pierced. In most instances, however, the intended fistula by union of the margins of the mucous lining of the nose and of the sac was only of short duration, the opening closed and the condition recurred.

Yankauer, about two years ago, devised an ingenious method of submucous removal of the nasal wall of the naso-lacrimal duct. The

*Read before the New York Academy of Medicine, Section on Laryngology and Rhinology, October 28, 1914.

procedure was the first step in the right direction. This rather complicated method was followed by other methods where the same excellent results are achieved in a much simpler way. West was the first one to open the lacrimal sac proper intra-nasally. By means of a special slender and properly bent chisel the lacrimal sac is exposed at the anterior attachment of the middle turbinate and the innermost part of its wall excised.

The following pictures illustrate Halle's modification of West's method. During my stay in Berlin this summer, I had a good op-

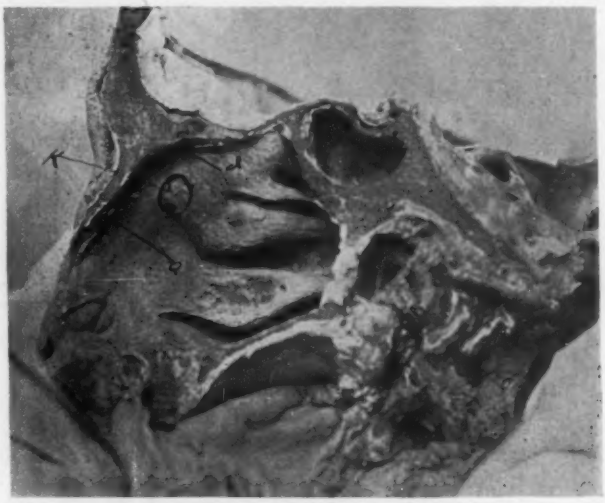

Figure 1. Halle's operation. Excision of piece of mucous lining.

portunity of seeing Prof. Halle perform this operation and of convincing myself of the excellent results obtained thereby.

After thorough cocainization, a round piece of mucous lining, about 3 mm. in diameter, is excised at the anterior attachment of the middle turbinate. Incisions are then made, a few millimeter in front, above and below this hole, and the flap thus formed submucously detached. The lateral nasal wall is then chiseled away at a location and to an extent corresponding to the primary hole cut into the nasal mucous lining. Through the previously slit canaliculum a lacrimal probe had been introduced into the sac.

The sucecssful intra-nasal exposure of the sac becomes evident when the probe is touched by the chisel. The inner wall of the sac

is then grasped with a thin forceps and a corresponding piece excised. The submucously detached flap is sutured into its former position. The after-treatment consists in probing and in the application of silver nitrate.

In order to prevent any possibility of obliteration of the new opening and to save the patient from the annoying probing during the after-treatment, I tried first in the cadaver and then *in vivo* the following modification of Halle's method.

The nasal wall is cocainized (20 per cent) and adrenalized. Through the previously slit canaliculus the sac is first washed out

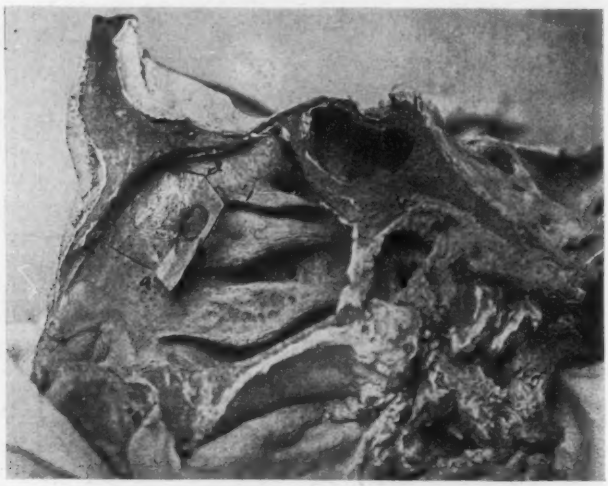

Figure 2. Submucous resection of flap.

with an antiseptic solution and then cocainized. A lacrimal probe is then introduced. At the anterior attachment of the middle turbinate the bone together with its lining of mucous membrane is chiseled away until a hole of about 3 mm. diameter is formed and until the chisel strikes the probe that is pushed by the assistant towards the nasal cavity.

A piece of the inner wall of the sac is then excised according to West and Hallé. A thin probe with an eyelet at its one end is introduced with its blunt-pointed end, until it can be seen emerging from the opening of the sac into the nasal cavity. Into the eyelet at the upper end of the probe No. 2 white silk has been threaded.

Under guidance of the reflected light the blunt-pointed end of the probe is then caught by means of a nasal forceps and the entire probe pulled off the nose. The end of the silk thread thus emerging from the nose is then tied to its other end at the canaliculus. No external dressing is needed. The entire operation ought not to take longer than a few minutes. This silk drain remains in place for several weeks until there is no more possibility of closure of the wound. The patient is not annoyed at all by the thread. By means of a piece of cotton a 10 per cent solution of protargol is applied to the thread and the latter moved up and down, whereby the medi-

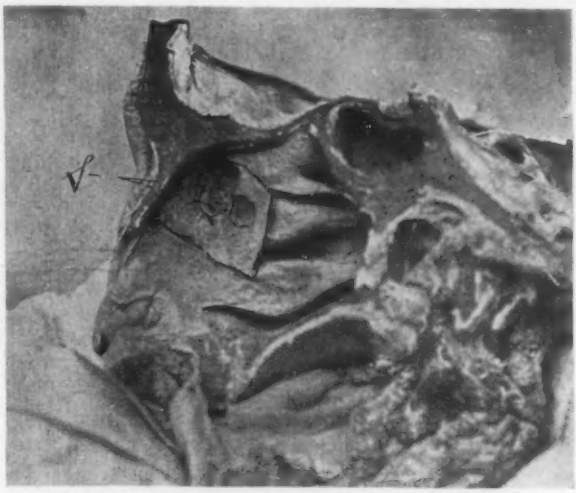

Figure 3. Chiseling out of bone corresponding to the hole in the mucous lining. (S).

cament is brought into intimate contact with the entire naso-lacrimal duct. The patient quickly learns this simple procedure and applies it at home.

The patient I have the honor to demonstrate to-night has been suffering for many years from suppurative dacryocystitis. A fistula towards the skin had formed some time ago. When the patient came to my clinic at the North Western Dispensary the surroundings of the left lacrimal sac were immensely swollen and inflammed; there was, upon slight pressure, an immense flow of pus.

Four days ago I performed on her the above-described operation The swelling and redness have disappeared; there is just a light dis-

charge upon pressure. Since the presentation of the patient six weeks have elapsed. There is no discharge whatsoever, the communication between the sac and the nose is open as demonstrable when syringing the canaliculus. The silk thread was in place for four weeks. The tears drain into the nose, the fistula towards the skin has disappeared.

During the last two weeks, when glancing through the journals that had accumulated during my stay in Europe, I saw in the *Monatsschrift fuer Ohrenheilkunde*, Volume 48, No. 7, 1913, an article on dacryocysto-rhinostomy by Rudolf Hoffmann of Munich.

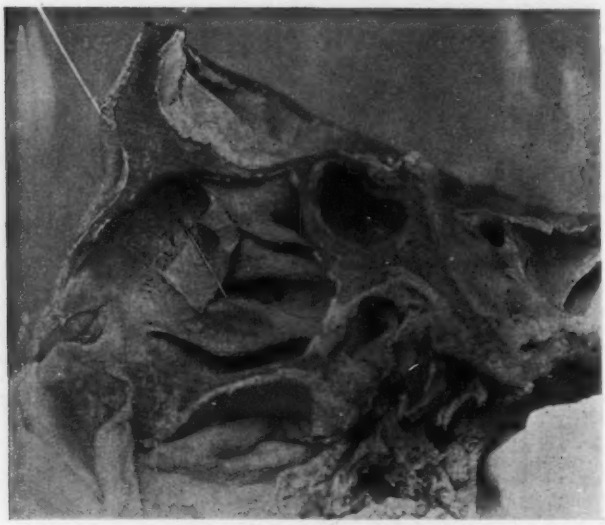

Figure 4. Communication between sac and nose perfected.

He does not make any intra-nasal operation at all. Through the previously slit canaliculus he forces a probe into the nose and thus makes a tiny communication. Then he pushes through this opening a needle with a silk thread and ties the thread from the outside. This procedure is entirely different from the one above described. It is unscientific, because the probe is pushed at random into the nose and the seat of the drainage opening, if such a minute hole may be so called, may be entirely unfavorable to drainage. The writer himself seems to be very skeptical, for he says: "The chances of obtaining permanent nasal drainage are the greater, the smaller the

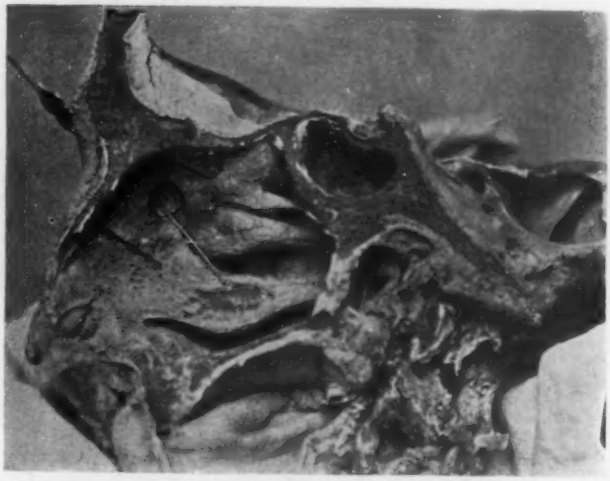

Figure 5. Flap of mucous lining sutured into former position.

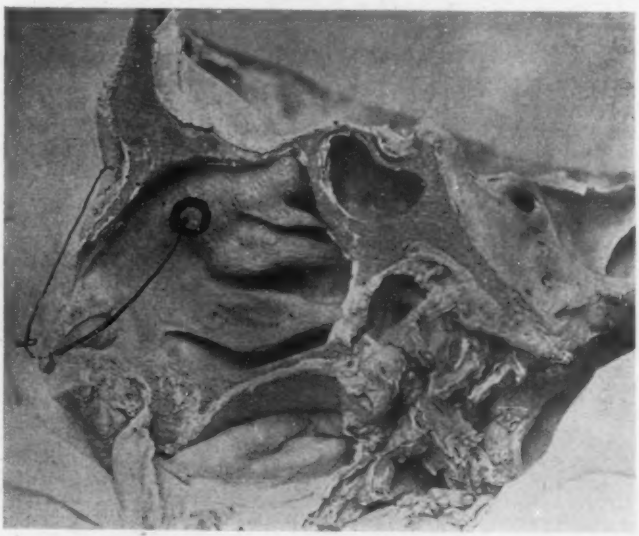

Figure 6. Glogau's modification of Halle's operation, the thread drain in position.

drainage opening and the lower it is located beneath the canaliculus, in order to make the capillary conditions within the sac somewhat like the normal."

In my modification of Halle's method the drainage opening is large, located at the lowest portion of the sac and obtained on the basis of topographic anatomical conditions.

Choronshitzky, in the April number of the *Archiv für Laryngologie* describes a method similar to that of Hoffman. He introduces a tiny trocard into the canaliculus and pushes it into the nose. The results are of only short duration.

Thread drainage of the naso-lacrimal duct has been advocated some years ago by Koster and Kan in a Dutch Journal (*Ned. Tijdschr. v. Geneeskunde*, Vol. 2, 1907, p. 649). Their method, as described in Hoffman's article, consists in the introduction into the naso-lacrimal canal of a grooved sound and in the introduction

Figure 7. Patient with thread in naso-lacrimal duct.

through it of a stiff thread that is sneezed out by the patient. The two ends of the thread are tied on the outside of the nose. This method is dangerous on acocunt of the possibility of making a false route and unreliable because soon after the removal of the thread stenosis of the duct may recur through swelling of the turbinal mucous lining.

There is no doubt that in the near future the rhinologist will be called upon to perform the operation on the lacrimal sac. At Prof. Fuch's Eye Clinic in Vienna I saw every case of dacryocystitis referred to Prof. Neumann for intra-nasal operation. In Berlin the physicians send their cases of dacryocystitis to West and Halle and their pupils. It is up to the American rhinologists to obtain by perfection of method and excellency of results the exclusive privilege of operating on a structure that logically belongs to the realm of their specialty.

1320 Madison Avenue.

NOSE, THROAT, EAR, ORBITAL AND INTRA-CRANIAL COMPLICATIONS IN ACCESSORY SINUS DISEASES.*

DR. L. D. BROSE, Evansville, Ind.

Intra-nasal complications: One of the most constant intra-nasal complications in accessory sinus disease is obstructed nasal breathing. This may be due to swelling of the turbinal bodies, to hypertrophy of the middle turbinal bone, to polypoid degeneration of its mucous covering, or to tumor-formation, mostly of a benign polypoid character. Such tumors may occur singly or multiple and while oftenest found in association with labrynthine ethmoidal disease, yet do occur with disease of the maxillary, sphenoidal and frontal sinus. A large single polypus in the retro-pharynx, in my experience, is oftenest seen when the sphenoidal sinus or posterior ethmoidal cells are the seat of disease, while small polypi or polypoid or cystoid hypertrophy of the anterior end of the middle turbinal creates suspicion of disease of the anterior ethmoidal cells, antrum or frontal sinus. However, polypi in the nasal passages occur without accessory sinus disease and hence cannot be looked upon as pathognomic of suppuration in these cavities. The olfactory sense is usually affected through hypertrophy of the middle turbinate, anosmia respiratoria, or because of anatomical changes, anosmia essentialis. Subjective kakosmia is not infrequent and due to decomposition within the sinuses or nasal chamber. An unpleasant taste in the mouth, often present in the morning, may be occasioned by fermentation of the secretion which has collected in the choanae overnight. Obstinate eczema around the nasal orifices may be occasioned by abundant acrid secretion from diseased sinus and from secondary rhinitis. Persons suffering with chronic accessory sinus disease are especially liable to frequent attacks of coryza.

Throat complications: As throat complications, we find pharyngitis sicca, pharyngitis lateralis, adenoid and tonsillar hyperplasia, the result of infection and irritation of the pharyngeal mucous membrane from constant contact with the discharge from the diseased sinus. Laryngitis and tracheo-bronchitis may have a similar origin while spasmodic asthma may occur from reflex irritation arising in the nose or diseased accessory sinus.

*Read before the Vanderburgh County Medical Society, December 8, 1914.

Orbital complications: Sight derangement may occur by way of continuity of structure, by reason of dehiscence in the sinus wall, by way of the lymphatics and by the blood-vessel system. Again it may be produced in a purely mechanical way through pressure on the optic nerve in the canalis opticus, or on some of the nerves supplying the extra-ocular muscles, or by reason of displacement of the eyeball. The direction of the eye-displacement is of importance in locating the seat of the cause. In sphenoidal sinus disease the displacement is forward. In ethmoidal cell disease, outward, downward and possibly forward. In frontal sinus disease downward and slightly outward. In antrum disease upward.

The anatomical relation between the sphenoidal sinus, posterior ethmoidal cells and optic nerve because of the variable development of these cells is not a constant one. At one time the nerve may be almost wholly surrounded by a large posterior ethmoidal cell, and again it is the sphenoidal sinus that bears a very close relation to it. When the frontal sinus extends backward into the lesser wing of the sphenoid, empyema of this sinus may involve the nerve of sight. The relation between the optic nerve and the sphenoidal sinus or a large posterior ethmoidal cell, at times, is all the more intimate by reason of the bony partition between them being reduced to tissue-paper thickness, with occasionally congenital dehiscence in the partition so that the nerve is directly exposed to pressure injury or to direct inflammatory involvement. Enlargement of the blind spot is highly significant of disease involving either the sphenoidal sinus or posterior ethmoidal cells.

Again we may find contraction of the visual field, unilateral optic neuritis and optic nerve atrophy. Unilateral choked disc is mostly an orbital affection. Always think of accessory sinus emphyema with rapid onset of visual disturbance in one eye for which no other plausible reason can be discovered. When the ophthalmoscopic appearance of the optic disc is normal a test should be made to determine the presence or absence of central scotoma for color. Sight disturbance through direct involvement of the eyeball is infrequent yet it does occur through thrombo-phlebitis and orbital cellulitis.

Among such intra-ocular lesions I will mention choroidal and retinal hemorrhages, retinal detachment, embolism of the vena centralis retina, uveitis, edema of the retina, choroido-retinitis; dacryocystitis, the result of nasal obstruction secondary to sinus disease may also be mentioned here.

As other circulatory disturbances I may mention conjunctival hyperemia, epiphora, edema of the lids, which may disappear at times

and return, and astigmatism from pressure-edema. Reflex neuroses are common and manifest themselves as asthenopia, bulbar and peri-orbital neuralgia, blepharospasm, painful tic and pseudo-migraine ophthalmoplegique. The explanation for the latter lies in the subsidence in the inflammation in and about the empyemic sinus, which ensues when there is a sudden pus evacuation, and with recurrence of inflammatory reaction when there is pus retention with distension. Because of this, the palsy of the branches of the oculo-motor nerve takes on an intermittent character. The sixth nerve, because of its long course through the orbit and its close relation to the sphenoidal sinus wall, is especially exposed to paralysis. When the palsy is not complete testing for diplopia in the extremes of the fields of extra-ocular muscular activity may alone bring out the nerve implicated.

Empyemeta of the accessory sinuses frequently give rise to orbital osteitis, periostitis and abscess. Such inflammatory processes may develop acutely or pursue throughout a chronic course. Because the mucous lining of these sinuses exerts a periosteal function, when it becomes inflamed the nutrition of the underlying bone may be so much impaired that periostitis or subperiosteal abscess follows. If not interfered with, the abscess in case of frontal sinus origin spreads along the upper and inner orbital wall, seeks exit through the perforation taking place usually in the middle of the upper lid or over the internal canthal ligament.

I have encountered orbital abscess due to destruction of the os-planum and lacrimal bone through ethmoidal empyema. An orbital cellulitis thus set up because of its tendency to extend backward may become a source of great danger to the optic nerve. Normally there is no direct communication between the orbit and accessory nasal sinuses. Indirect communication is established between the orbit and frontal sinus through branches of the supra-orbital and ethmoidal vessels and the compact net-work of veins in the mucous membrane lining the sinus. Between the orbit and ethmoidal cells the communication occurs by means of the anterior and posterior ethmoidal vessels while the maxillary antrum has its communication through the infra-orbital vessels.

Orbital inflammation, the result of antrum disease, is characterized by subperiosteal abscess in the lower part of the orbit with swelling of the cheek and lower lid. The eyeball is displaced upwards with restricted downward movement. Because of thrombophlebitis extending through the numerous venous channels that emp-

ty into the ophthalmic vein, a striking clinical observation is the rapidity of development and course of the cellulitis.

Tumor of sphenoidal sinus: The following interesting case of malignant tumor is worthy of report because of its extension not only to the orbital cavities but likewise to the intra-cranial ones: J. R., unmarried, 42 years old, consulted me December 21, 1910, because of obstructed nasal respiration and recurrent epistaxis. During the past four weeks in addition there has been increasing frontal headache. Vision right eye 15/xxx, left eye 15/L; near he read, SnD 1.25 and SnDo. 50, respectively. Ophthalmoscopic examination disclosed posterior choroiditis of both eyes.

Rhinoscopic examination: a tumor was seen occupying the retropharynx with a broad attachment on the right side over the region of the sphenoidal sinus. By means of a posterior nasal forceps portions of the tumor were removed. The operation was attended with smart bleeding which we controlled by syringing the nasal passages with diluted hydrogen peroxid. Microscopical examination disclosed the tumor to be a sarcoma.

February 10, 1911, exophthalmos of left eye with displacement forward and inward. Because of involvement of the extra-ocular muscles he sees double. Vision: right eye he counts fingers at 8 feet, left eye 15/Lxxx. Numerous retinal hemorrhages with neuro-retinitis of both eyes due to pressure-impairment of the return venous circulation and involvement of the optic nerves. Later the right optic disc became white, atrophic, with increased forward displacement of the left eye. The growth not only involved the nasal passages and both orbits but extended into the cranial cavity, death ensuing from cerebral involvement.

Intra-cranial complications: Many cases of brain abscess, meningitis and other intra-cranial affections are on record as following empyema of one or the other accessory nasal sinuses. From the frontal sinus extension may occur because of perforation of the bony posterior sinus wall and again through periostitis attacking the roof of the orbit. Infection through phlebitis of the veins in the diseased mucosa or the result of an orbital cellulitis may extend to the longitudinal, transverse, sigmoid and cavernous sinuses. He who has once seen a case of thrombosis of both cavernous sinuses will never again mistake its clinical picture of exopthalmos, orbital and eyelid edema, ptosis, immobility of the eyeball, injected and chemotic conjunctiva, and terrific pain in and back of the eyes. Periostitis, osteitis and osteo-myelitis due to sinus empyema and traumatism occur either circumscribed or diffuse. In case of the latter almost the

entire osseous covering of the brain may be affected unless deeper cerebral trouble such as subdural abscess, lepto-meningitis, thrombo-phlebitis and brain abscess ends its progress.

Meningeal complications in frontal sinusitis are mostly the result of chronic disease, the reverse being the case in ethmoiditis where an acute empyema is often the exciting cause. The symptoms of the cerebral complications are those found in similar pathological changes due to other causes and may be enumerated as intense headache, fever, rapid pulse in meningitis, slower pulse in abscess, dizziness, vomiting, delirium, convulsions, optic neuritis, choked disc, pareses of the ocular muscles, especially the third and sixth nerves, and nystagmus.

Psychical manifestations are present during the symptom-remission or in the slowly progressing cases. The patient has lapses of memory, slight mental wanderings while his mind is concentrated on business, until it requires an effort to concentrate the mind on his required work. He now shows disinclination for any form of work requiring mental effort, or he may show antipathy towards friends, with variable temper, carelessness in personal attire, mental depression and perhaps suicidal tendencies. His moods are apparently connected with the condition of drainage of the affected sinus, showing improvement after lessened retention.

Brain extension from the ethmoidal cells is most likely to occur through the cribriform plate with suppuration along the olfactory bulb. In case the extension is from the posterior ethmoidal cells or sphenoidal sinus the meningitis and abscess-formation by election vents its fury usually in the anterior part of the middle cranial fossa with involvement of the optic nerve, cavernous and petrosal sinus.

Ear complications: Ear involvement may be secondary to extension from the diseased petrosal sinus or by catarrhal involvement of the Eustachian tube secondary to hypertrophic lateral pharyngitis or pharyngitis sicca. In either case deafness may be complained of accompanied by tinnnitus aurium and vertigo. The middle-ear complication may be either suppurative or non-suppurative in character. On the whole, severe aural suppuration is not of frequent occurrence.

501 Upper First Street.

THE TEETH AS A PRIMARY FACTOR IN DISEASES OF THE EAR, NOSE AND THROAT—THE DIAGNOSTIC VALUE OF CO-OPERATION OF THE OTOLOGIST, RHINOLOGIST, LARYNGOLOGIST WITH THE DENTIST.

DR. DAVID BERNHARDT FREUNDLICH, New York City.

That the teeth are frequently a contributing factor in pathological conditions of the ear, nose and throat, has long been evident to the rhinologist, laryngologist, otologist and dentist. The fact that the teeth are very often a *primary* factor in such conditions has been more recently recognized by the men of both professions.

During the last few years, prominent men abroad and in this country have been studying the relationship existing between the teeth and these organs and many interesting and instructing papers have appeared in the medical journals as a result of their studies. Lermoyez of France, Tilley of London, and B. Fränkel, of Berlin, have contributed valuable literature on the subject.

Lermoyez states that his experience has shown dental origin to be more frequent than nasal origin in pathological conditions of the antrum. Tilley reports sixty-four cases of antral suppuration seen in his private practice in which, with only one exception, he found diseased bicuspid or molar, or evidence of these teeth having been extracted upon the side of the antral suppuration. Fränkel says that in his clinical experience he has *never* seen a case of empyema of the antrum in which the tooth on the corresponding side was not diseased or had been extracted.

Bayer, of Brussels, thinks that cases of antral suppuration due to dental origin are most frequent; Grünwald considers twenty-one out of thirty cases to be due to dental origin.

Zuckerkandl and Dmochowski, although speaking less positively, suggest a relationship between the teeth and empyema of the antrum. We find these men writing that it is possible that many cases of empyema of the antrum may be the result of tooth infection, but that tooth infection may, on the contrary, be the result of carious and pathological processes in the antrum itself.

George L. Richards, of Fall River, and John McCoy, of New York, place the number of cases due to dental origin at from 25 to 30 per cent. Edward Dench, of New York, writes that it is quite possible that carious teeth may cause middle-ear inflammation, either

directly or by the introduction of germs into the tympanum through the Eustachian tube or indirectly through the nose.

Dr. Joseph C. Beck, speaking at Atlantic City recently, said that chronic local infections of the nose, mouth, ear, and throat, do their damage locally as well as through the system in reducing the vitality and predisposing to acute conditions. The most potent factors, Dr. Beck said, are diseased tonsils and adenoids, the accessory sinuses

Figure 1.

of the nose, the middle ear and the mastoid, the teeth, gums and jaw.

That the men of this branch of the medical profession realize the importance of co-operation with the dental profession in the diagnosis and treatment of conditions coming within their province is evidenced by the reports presented by them of interesting cases coming under their notice in which such co-operation was or would have

been of direct diagnostic value to them, and of inestimable benefit to the patient.

Dr. Richards, in an interesting paper entitled "On the relative frequency of the dental and nasal origin of antral empyemata," says, 'the entire working out of the pathology and treatment in the borderland cases should be made by the dentist and the rhinologist together." Dr. Philip Schech, of the University of Munich, says, "one should never omit to examine very carefully the teeth and gums."

Dr. J. M. Ingersoll, of Cleveland, reports a case in which the real condition was not discovered until after the death of the patient. In this case there was a persistent neuralgia and some tenderness over the right antrum at times. The teeth were all in good condition and the nose normal. The patient died of pneumonia. An autopsy showed a fairly well-developed molar tooth in the posterior wall of the right antrum just above the floor. The crown projected into the antrum and the roots were embedded in the antral wall. The antrum was otherwise normal. A radiograph would have diagnosed this condition and co-operation with a skilled dentist would have undoubtedly resulted in a complete cure.

Dr. Ingersoll says: "Supernumery teeth may grow in the antrum or nose without causing any decided symptoms except facial neuralgia and as long as they are well nourished may remain undiscovered. Such teeth are, however, frequently poorly developed and tend to become loosened and necrotic and then act as an irritant to the surrounding tissue."

Many cases of dental origin present outward and visible evidences of causation such as decayed roots, pyorrhea, or an abscessed tooth, and are recognized at once by the physician. But others are more obscure and except where the condition is disclosed by an x-ray picture remain undetected. The use of the x-ray in all cases of doubtful diagnosis cannot be too strongly urged upon the men of both professions.

Every measure should be taken to detect a possible dental pathological condition in *all* disturbances of the ear, nose and throat, the author claiming that the teeth are a far greater etiological factor, primary or secondary, than is generally understood.

Broken roots, malposed wisdom teeth, or a growth on the root, all of which may be invisible processes, are some of the conditions frequently responsible for serious affections of the nose, throat and ear.

For many years, adenoids and pathological conditions of the teeth have been closely related and much has been written on the subject. In these conditions, the teeth are the victims and not the offenders,

and the skilled dentist recognizing the condition, and aware of the value of co-operation with the laryngologist, sends his patient to him to confirm his diagnosis, and urges upon the patient the necessity for submitting himself to the treatment advised by the laryngologist.

Diseased tonsils are frequently the cause of early decay of the teeth, and here again the dentist co-operates with the laryngologist for the scientific betterment of his own work and the greater welfare of the patient. George H. Kress, of Los Angeles, writing of neglected cases of diseased tonsils and adenoids, says, "the retained and decomposing nasal and pharyngeal secretions favor the invasion of these tissues by bacteria, and as a consequence these children have more caries of the teeth than is usually the case." . . . "Surely the crosses which this host of fellow-beings unnecessarily are made to bear, should be sufficient to make us look upon properly indicated tonsillectomies and adenectomies as of the highest economic and social significance and worthy of the broad exploitation these subjects are now receiving. And in this work of education, we feel sure that our colleagues of the dental profession will be more than willing to do their part."

Emil Mayer, of New York, reports an interesting case in his paper entitled, "Affections of the mouth and throat, associated with the fusiform bacillus and spirillum of Vincent." Dr. Mayer says, "it is mainly an infection of the tonsils, but also occurs as a stomatitis," and "the affection seems to have a predilection for the male adult and is said to be due to the use of tobacco, *eruption of a wisdom tooth, defective teeth or those covered with tartar,* lymphoid tendency, syphilis and mercurial stomatitis." The condition manifests itself in frequent sore throats.

The following are four cases which have come under the writer's observation and treatment, and which are selected as typical ones in which co-operation by the otologist, laryngologist, rhinologist and dentist, was of the greatest value to each and of still greater value to the patient.

Case 1: P. W., female, 10 years old. Child suffered with severe ear-ache at intervals and had been visiting a physician for over a year with no relief. The ear was normal to all appearances. The mother, thinking that a tooth might be responsible for the condition, brought the child to the writer. An examination showed an inflammation of the pulp of the lower left first molar. The tooth contained a large filling in good condition. The necessary treatment was instituted with no relief and after careful consideration the writer reluctantly extracted the tooth, after which the pain immediately dis-

appeared with no recurrence. This case shows a positive relationship existing between the teeth and the auditory organs and is illustrative of a need for co-operation by the otologist and the dentist.

Case 2: A. B., female, 35 years old; empyema of the antrum. This patient was referred to the writer by a rhinologist who advised a dental examination as an aid to diagnosis. The pulp of the first upper left molar was found to be badly decomposed. The writer immediately extracted the tooth, and after several treatments by the rhinologist, the empyema cleared up, and the socket returned to its normal condition.

Again we are brought face to face with the great mutual benefits to be derived from a recognized plan of co-operation between the physician and the dentist.

Case 3: F. H., female, 20 years old. This patient was referred to the writer by a laryngologist. The patient suffered with a painful sore throat which did not yield to treatment. An examination showed an erupting, malposed wisdom-tooth from the socket of which pus oozed. The tooth was removed and within ten days the condition subsided.

The writer would suggest the advisability of a careful examination of the oral cavity in all cases of so-called "sore throat" occurring in patients between the ages of 18 and 35 years, as a similar condition may be the causative factor.

Case 4: I. B., male, 29 years of age. This patient came to the writer from Dr. John A. Robinson of New York City. The patient suffered with a pain which he described as intermittent, dull and annoying in character, increasing in intensity. He sought relief from the otologist who advised a radiograph as an aid to diagnosis. The radiograph showed so plainly the source of the trouble that dental treatment was advised and instituted at once. The accompanying reproduction of the plate made by Dr. F. L. Satterlee, Jr., shows the lateral aspect of the inferior maxilla, taken from the outside, and presents a well-defined area of alveolar abscess, pointing downward with considerable infiltration in the process of the apex of the mesial root of the first molar which bears a gold crown. This root shows filling material only just passing the pulp chamber. The area of destruction extends well downward from the apex of the root, and appears to involve the inferior dental canal, just posterior to the mental foramen. A smaller abscess is seen also at the distal root of the same tooth. The other teeth show nothing pathological.

Before closing, the writer wishes to call the attention of the physician to an interesting report by Dr. C. B. Nesbit, of Valparaisa,

Indiana, appearing in a monthly bulletin of the Indiana Board of Health, in 1912. Dr. Nesbit reports a three years' epidemic of scarlet fever in the city, to terminate which, a school inspection was begun. The teeth of 190 children were examined; 937 cavities were found, 454 in permanent teeth; 50 had scarlet fever during the epidemic, 238 cavities were found, 1 had twelve cavities, 2 had ten, 2 had no cavities. After the examination, it was insisted upon that all cavities be filled before the patient is released from quarantine.

Dr. Nesbit believes with the writer that cavities are incubators for all kinds of pathogenic bacteria. He says "cavities are known to contain the germs of diphtheria, pneumonia, tuberculosis, influenza, and other diseases, which enter the body through the respiratory tract, and as scarlet fever, measles, whooping cough and mumps are believed to be respiratory infections, it is fair to presume that cavities would be equally efficient incubators for these diseases."

As a step farther in the line of preventive medicine, would it not seem to be the duty of the laryngologist, rhinologist, otologist and dentist, within whose province these incubators of disease lie, to impress upon the patient the great danger to which he is exposing, not only himself, but the community at large, by allowing these cesspools of poison to remain?

In conclusion, the author of this paper is appreciative of the interest being taken by the men of this branch of the medical profession in the matter of co-operation, and is looking forward to the time when all will meet on common ground for the discussion of conditions relative to their common field of operation and in a relationship as intimately associated as that existing between their professional provinces.

212 West 112th Street.

Laryngectomy in Cancer of the Larynx. R. BOTEY. *Gac. Med. Catalana.* Feb. 28, 1914.

In this case the total removal of the larynx and the partial removal of the pharynx and trachea was performed under local anesthesia. Gluck's method was used. The patient speaks distinctly with the help of an apparatus especially devised by Botey.

ED.

EDITORIAL DEPARTMENT

DEFECTS OF SPEECH.

EDITED BY
DR. G. HUDSON-MAKUEN,
PHILADELPHIA.

THE VOICE.—THE RELATION OF THE LYMPHOID TISSUE IN THE UPPER RESPIRATORY TRACT TO THE VOICE.*

The lymphoid tissue of the upper respiratory tract is similar to that found in other regions of the body, although there are marked structural differences in the various distinctive portions of the tissue itself. This lymphoid tissue is always present, and it is in close approximation to some of the most important of the vocal organs. The tissue varies so much during the life of the individual that it is difficult to say just when it ceases to be physiological and becomes pathological, and physiological conditions are often mistaken for pathological ones and treated accordingly.

Voice is a vehicle for the expression of thought and feeling, and it is therefore essential to psychological as well as physiological development. There are three ways in which the lymphoid tissue of the upper respiratory tract may affect the voice and influence its development: first, through its action as a lubricant to the pharynx; second, through its influence upon the action of the muscles employed in phonation; and third, through its effect upon the resonance chambers of the voice. Normal lymphoid tissue lubricates the pharynx, and abnormal lymphoid tissue either fails to lubricate the pharynx or lubricates it too much.

The muscles chiefly influenced by the lymphoid tissue are the palato-pharyngei, palato-glossi, and the superior constrictor muscles, and all the resonance chambers of the voice are more or less affected by it.

Enlarged adenoids and tonsils interfere with the development of all the facial bones, including the alveolar arches, and through their

*Author's abstract of a paper read by invitation before the Philadelphia Pediatric Society, December 8, 1914.

effect upon respiration and phonation they interfere also with the development of the pharyngeal, laryngeal, and thoracic cavities; thus materially altering the size, shape, and contents of all the resonance chambers of the voice. Degenerated tonsils are injurious to the voice because they result in congestion and a corresponding hypertrophy of the adjacent membranes and muscles, and thus interfere with their normal action. The lymphoid tissue in the upper respiratory tract that becomes prejudicial to the voice is also prejudicial to the general health of the individual, and there is a dual reason, therefore, for trying to restore it to its normal condition.

From the vocalist's standpoint, indications for operative measures upon the lymphoid tissue in the pharynx should be regarded as a misfortune for two reasons: first, a tonsil that requires operative measures is always either hypertrophied or degenerated or both, and either of these conditions is deleterious to the voice; and second, it is doubtful whether any kind of an operation upon the tonsils can ever quite restore them to their normal condition and thus enable them to perform their normal functions in voice production. An improvement in vocalization, therefore, is all that can be promised to those requiring operative measures. The chief reason for tonsillar surgery is to improve or conserve the general health of the individual, and a secondary but scarcely less important reason is to improve or conserve the individual's voice.

Every child should be regarded as a possible singer, and the conservation and development of its vocal organs should always be carefully considered. If conservatism is ever indicated in tonsillar surgery, it is indicated in the case of children, because the probabilities are that the active lymphoid tissue of children has important systemic functions and because the voice is more easily injured during the growth and development of the vocal organs than after they have come to maturity. With our present limited means of making differential diagnoses, it is very easy to mistake cause for effect in the pharyngeal diseases of childhood. A mere congestion of the pharynx, for example, or even an occasional attack of tonsillitis is not a sufficient reason for removing the tonsil, for the cause of the disturbance may be, and often is, in some other and even remote region of the body.

Other things being equal, the less radical the operation the less liability will there be of injury to the voice, and hence the great desirability of conservatism in tonsillar surgery whenever radicalism is not absolutely indicated. As Dr. Thomas R. French, of

Brooklyn, has well said: "Let us be radical when we must and conservative when we may."

SUMMARY.

Lymphoid tissue is always present in the upper respiratory tract, and it has important mechanical as well as systemic functions. In its normal condition it is beneficial to the voice, because it tends to lubricate the pharynx, to direct the action of the vocal cords, and to improve the functions of the resonance chambers, but in its abnormal condition it is harmful to the voice, in that it tends to either over- or under-lubricate the pharynx, to deflect the action of the vocal muscles, and to impair the functions of the resonance chambers.

Normal lymphoid tissue in the upper respiratory tract should never be removed for any reason whatsoever, and abnormal lymphoid tissue should be treated on strictly medical and surgical principles.

Abnormalities that are deleterious to the general health of the individual are also deleterious to the voice, but operative measures that are beneficial to the general health of the individual may be decidedly injurious to the voice.

From the vocalist's standpoint, therefore, the highest degree of conservatism that is consistent with the principles of good surgery should always be practiced. As I have said elsewhere, an extracapsular tonsillectomized pharynx is always a more or less damaged pharynx, and the operation should only be done when the damage to the pharynx and to the individual threatens to become greater by leaving it undone.

Conditions Resembling Elephantiasis of the Ear. L. BROCQ, *Ann. de Dermatol. et de Syphiligraphie*, May, 1914.

In one of the conditions described the pinna of the ear suddenly becomes red and edematous. There is tumefaction, tension and skin-heat without preliminary dermatosis. The conditions clear up but there are recurrences.

The other is a severe exacerbation of an eczematous parakeratosis already present in the auditory canal or in the sulsus behind the ear. It resembles erysepelas and persists for a long time, especially in woman around the menopause. ED.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Regular Meeting, October 28, 1914.

DR. J. HENRY GÜNTZER, Chairman.

Tuberculosis of Nose, Hard and Soft Palate. Presented by DR. C. D. VAN WAGENEN.

Lillian D.; white; age, 15 years; school-girl. Family history: Two aunts on father's side died of tuberculosis. No history of syphilis, malignancy, or insanity. Past history: Patient has had measles and whooping cough; has always enjoyed fair health; menses not established; bowels, regular.

Present illness started January 16, 1914. Left ankle commenced to swell; some pain; no fever; finally, a discharging sinus was formed. There was a gradual loss of weight and strength. On April 15, there was pain in both ears but no fever; both drums ruptured and discharged pus. She was then seen by two physicians but no treatment was given. About this time a running sore was noticed on the upper lip and nose. A diagnosis of syphilis was made, but I am unable to state whether specific treatment was given. A slight cough at night also developed.

On August 15, the patient was admitted to Seton Hospital. She had lost twenty pounds in weight, was coughing at night, had a discharging sinus from left ankle which was painful, and complained of pain in the throat. Examination showed an ulcerated granulating inflammation of the nose, mouth, and pharynx. The anterior cervical and post-auricular glands were palpable. The right lung showed dullness, broncho-vesicular breathing, and mucous rales over the upper lobe. The liver and spleen were not enlarged. The patient appeared very anemic. An examination of the nasal discharge was negative for the spirocheta pallida or tubercle bacillus. Wassermann was negative.

No special treatment has been given except the usual treatment for tuberculosis—rest, fresh air, and good food. The temperature has been practically normal at all times. Since admission, the lung-condition has cleared up, and there are present no signs. The sinus in the left ankle has healed up and there is no pain. There has been a gain of sixteen and a half pounds in weight (in ten weeks).

To-morrow morning the patient will receive her first x-ray treatment at Vanderbilt Clinic.

DISCUSSION.

DR. CARTER said that he was glad to have heard Dr. Van Wagenen's description of this case and to have seen the patient, for he himself had had a case of tuberculosis of the nose under observation and treatment for seven months, with fairly gratifying results. The patient was a young

man, 28 years of age, referred by Dr. Mabey, with a history of having had a running ulceration of the nose for a year. Dr. Mabey reported that he had done everything possible for the case but had been unable to control it. There was a discharging ulcer on the septum, on the right side, anteriorly. The cartilage was exposed but had not been invaded. The floor of the nose was involved, and the inferior turbinate and the posterior pharyngeal wall were also ulcerated.

Although he did not think it was syphilis, a Wassermann test was made, which proved negative. A piece of tissue was excised and sent to Dr. Dwyer for examination, who pronounced it tuberculosis of the nose. Almost everything had been tried in the way of treatment, including cautery and the stick nitrate of silver, so ortho-chlor-phenol was applied, and within six weeks the ulceration of the septum was thoroughly under control; it healed entirely inside of six months. The other portions of the nose that were involved were also better. The most trouble was encountered with the ulceration on the posterior wall of the phaynx, but this is greatly improved. Two months ago a similar ulceration of the inferior turbinate started in the opposite nares. When first seen, the anterior portion of the septum covered by skin had the same appearance as the lesion on this child's nose, but all the induration has disappeared and that part of the septum is well. Dr. Carter said that he wished to report this case because of the effect which the ortho-chlor-phenol had upon the condition.

Dr. Hayes reported a similar case seen in the City Hospital, which has not turned out so satisfactorily. The patient in this instance was a young negro, 16 years of age. The diagnosis of syphilis was first made, but the condtion went on from bad to worse until it was almost impossible to keep the boy in the ward. There was extensive necrosis, almost covering the face, with tubercles on the skin. The ulceration increased until the whole nose disappeared, and one could see right into the throat. Salvarsan and other treatment had no effect.

The patient had been lost sight of within the last month, but the condition started out similar to this one.

Dr. Emil Mayer said that he had not heard what had been said about this case, but from the tremendous amount of destruction shown by the picture and the absence of actual clinical signs of tuberculosis, he would be inclined to call this a case of lupus. It fits in exactly with cases of primary lupus that he has had on several occasions. The difference between lupus and tuberculosis is mainly one of prognosis. The patient is reported as gaining in weight, and yet there is much destruction of tissue going on. The epiglottis was very much thickened, and was very irregular and nodular, and there were foci where destruction had already occurred.

Dr. Harris said that he had had an opportunity of seeing this case since Dr. Van Wagenen reported it, and the question of interest lay in the diagnosis. Those who had followed up this question in the Section knew that it was one that had been long debated. Dr. Harris said that he agreed with Dr. Mayer that clinically the case was lupus, and thought that if the impression goes out that there is any difference between the

two excepting in the prognosis, it would be a mistake. We do not want to make a fixed and fast distinction between the two except in the prognosis. As Dr. Mayer said of the case he followed for years, the progress of the lupus cases in the larynx has been remarkably slow—the condition is comparatively benign—whereas with true tuberculosis it is very different. Dr. Harris said that he thought this case also should be regarded as one of tuberculosis and asked if Dr. Van Wagenen had tried x-ray treatment for it.

DR. VAN WAGENEN replied that x-ray treatment had not yet been started. The patient had been taken to Dr. Fordyce at the Vanderbilt Clinic and treatment would be instituted at once. It was presented this evening for diagnosis. He had seen the patient first two weeks ago, and again to-night for the second time, and was inclined to believe that it was a case of lupus, but he wished to get an expression of opinion from the Section upon it.

Multiple Laryngeal Papillomata: Treatment by Tracheotomy and Fulguration. Presented by DR. JOHN MCCOY.

Dr. McCoy said that the patient was presented more with the idea of showing the difficulty in curing such cases, as he cannot yet be considered cured and will require further treatment.

The child was first seen on September 18, 1912, being then 5 years old. He came to the clinic with a history of having suffered from hoarseness for two years, and that for the last month or two he had been markedly dyspneic. Examination of the larynx showed typical multiple papillomata. Under anesthesia all of the growth was removed by the direct method and a free passage through the larynx was obtained. The papillomata, however, recurred very rapidly and were again removed, December 2. He was as choked up and dyspneic as ever, and on that date his tonsils and adenoids were removed, together with the growth from the larynx.

On December 19, a tracheotomy was performed, with the idea of putting the larynx at physiological rest, and as much as possible of the papillomata was removed. The tube was left in place, and he was not treated again until March 17, 1913, three months later, at which time the growth had re-appeared as voluminously as ever. Removal by the direct method was again performed, and fulguration was applied. From that time, March, 1913, until June, 1914, the growth has been removed as many as eight times, followed by fulguration. At first these procedures did not seem to have any effect. The growth was removed and the area fulgurated, and in a few weeks it would recur regularly. However, in the latter part of May of this year, 1914, a marked change took place. Instead of soft, succulent papillomata, re-forming, the tissues became firm. Whether this was due to the fulguration or to the physiological rest, we do not know, but there has been no disposition for the growth to recur, though there is considerable thickening of the tissue of the larynx. He has been watched carefully, and at this date has simply this thickened tissue in the larynx—a hypertrophic laryngitis.

On June 8, 1914, the tube was removed and the child allowed to breathe normally again. One can see where the tracheotomy wound was sewed up. He now breathes easily and comfortably. He has been in the coun-

try all summer, and when seen three or four weeks ago he was in about the same condition as at present.

He will be kept under observation, and if this thickened condition tends to become worse, dilating tubes will probably be used until the hypertrophy is checked. The child speaks in a strong whispered voice.

DISCUSSION.

DR. HARRIS said that in connection with Dr. McCoy's case he wished to present a little patient, and report briefly on another case. As Dr. McCoy had said, this subject presents many difficulties, and even a little light on the subject will be welcomed. The little fellow came to Dr. Coffin's clinic last summer with a very uncertain history. He had had difficulty in breathing, but was quiet when he was first seen. It was difficult to get a view of the larynx, and it was impossible to make a clinical, laryngoscopic diagnosis. Dr. Coffin suspected diphtheria, and a culture was made but proved negative. Later, the child had great difficulty in breathing and the house surgeon did a tracheotomy. The case was suspended by Dr. Coffin, who reported the larynx full of papillomata. On August 25, Dr. Harris suspended the case again, and the larynx was found to be obstructed with the papillomata. A very beautiful view of every part of the larynx was obtained, and the growth was removed. There was no reaction whatever.

After this, Dr. Harris went on his vacation and did not see the child again until about ten days previously, when a little granulation tissue was seen at the bottom of the wound. Since then, the child has been wearing a plugged tube for four or five hours a day. The tube is plugged at present and the child is breathing through the mouth. It is impossible to get a view of the larynx now. Dr. Harris said that he believes we have in suspension laryngoscopy the most ready and certain method of taking care of these cases of papillomata; the application is so easy and sure that it is an ideal procedure.

Contrasted with the temporary success in this case, Dr. Harris reported on an older child suffering from papillomata of the larynx which he had attempted to cure with radium. He first put in the radium tube with the aid of a mirror, but did not feel that it was satisfactory, and did a tracheotomy and then re-introduced the radium. The radium was of 250 mg. strength the first time, and later of 125 mg., and was introduced thirty minutes. Three applications of radium have been made, and three fulgurations, which were all failures, as the papillomata were not relieved. They were then removed under suspension, but the result has not been so satisfactory as in the other case, as there is still some obstruction in the bottom of the wound. Dr. Yankauer feels that there has been a wound of the cartilage, and that probably that is keeping up the reformation of the granulation tissue. When the tracheotomy was made it was necessary to work very rapidly, and perhaps it was not so carefully done as it should have been.

Dr. Harris said that he had reported a number of cures of papillomata in adults, and urged all those who had not yet used suspension laryngoscopy to give it a trial, for they would surely be delighted with it.

DR. FREUDENTHAL said that the cases presented had all been very interesting. He had seen a number of these cases, and believed that he was among the first to apply fulguration to the larynx, but he had given it up for this condition. Dr. McCoy certainly deserved a great deal of credit for the case he had shown treated by this method.

Dr. Freudenthal said that it is now his practice with children of 3 to 5 years or more, when diphtheria has been excluded, to put the patient right away under suspension. He had recently had two cases which he sent to the hospital and examined in this way, and removed the papillomata. It can be done very easily and very satisfactorily. He believed that if Dr. McCoy would put his patient under suspension he would be able to see more than he could by the direct method.

An Electrode for Fulgurating the Larynx. DR. SIDNEY YANKAUER.

Published in full in the December, 1914, issue of THE LARYNGOSCOPE, *p. 993.*

DISCUSSION.

DR. HARMON SMITH said that Dr. Yankauer had perfected an instrument of which he had felt the need in the application of fulguration in his previous cases and that he believed the drying influence of the air-current upon the moist surfaces of the papilloma would materially add to the effectiveness of the fulgurating spark.

Dr. Smith said that he was the first, so far as he knew, to apply fulguration to papilloma of the larynx for their eradication. In his opinion, surgery was unavailing in these cases, as in children or in any of the multiple forms of papilloma they would immediately recur after surgical removal. Rest was by far the most satisfactory and efficient treatment presented up to the present and could only be obtained by tracheotomy. He had tried in one case, not only tracheotomy, fulguration, operative removal and various methods of treatment, but had, in addition, applied radium a number of times without any permanent good. After each eradication, by whatever means, the growth would recur, but that in view of the ability to apply a more intense heat through the new Yankauer instrument and at the same time dry the surface of the papilloma, he believed that many of the difficulties incident to the removal of laryngeal papilloma would be overcome.

DR. COAKLEY said that the treatment of multiple recurrent papillomata, both in children and in adults, has been very unsatisfactory. The less surgery is applied to the interior of the larynx, the better. Tracheotomy and rest, without any intra-laryngeal surgery, is preferable. One case which he has had under treatment for six or seven years came in last spring with the papillomata just as bad as ever. He was a man, 40 years of age, and had been under the care of Dr. Simpson. He probably had these papillomata from the age of 4 or 5, up to the present time. His voice has always been hoarse, and it had never been possible to get all the papillomata out, many of them being subglottic. His voice would get somewhat better, but not much. Dr. Wood consented to use radium, to see what it would do. It was applied somewhere about April, and the papillomata apparently diminished more than 50 per cent in the course of ten days or two weeks. It was quite astonishing. He was called away from the city for a time and several men saw him, but he came back with

no greater diminution in the size of the papillomatous growth, as compared with his last visit. Dr. Wood made several more applications of radium to the exterior of the larynx for short periods. Dr. Coakley said he did not then see the man again until three weeks ago, and at that time he had a very good voice. There was no appearance of papillomata whatever. He did not know whether this treatment would do in every case, but in this instance the improvement should certainly be ascribed to the treatment. The man had a burn on the side of his neck, and it was sore, but it had apparently done more for him than anything else that had been tried.

DR. HARRIS asked how long was it used and what was the length of the applications.

DR. COAKLEY replied that he did not know Dr. Wood's method, though he understood that he used heavy doses—long continued applications of from twelve, to fourteen or twenty hours. That has been found to result in terrible superficial and later on deep ulcers and induration thickening—worse than any x-ray burns which we used to see; and in this case, which will be reported later, there were big masses of infiltration under the skin. This patient has now a thickening of the lower portion of the larynx which is the result of the application of radium months ago.

A possible difficulty with children, as compared with adults, is that the child's neck is short, and the larynx deeply situated. It would seem that the results in the thick neck are not so favorable for the action of the radium, externally applied, as where one can get nearer to the interior of the larynx. It is possible that it may not be so efficacious with children. Dr. Coakley said that if he should come across a case of papillomata in a child which seemed suitable, he would advise radium in repeated small doses, or medium-sized doses with short applications, repeated daily.

DR. COFFIN asked if Dr. Harris had ever reported the case of a woman treated in his clinic with radium by Dr. Robert Abbe.

DR. HARRIS replied that he had reported the case before the Section some time ago. The woman had multiple papillomata, and the treatment was along the line that he had described in the children shown this evening. A large strength was used in two applications, and after the second application they disappeared entirely, and the larynx has remained clear for a year and a half.

DR. COFFIN said that he wished to recall the fact that the radium had been applied intra-laryngeally and for periods of from twenty to thirty minutes. Of this he was certain, as he had himself held the radium in position for the first application. There was a copious growth of papillomata, as could be vouched by Dr. Braun, who was present and had made a sketch of the laryngeal picture. Before treatment the patient could not phonate. When he last saw the case, the larynx was clear of all growths and the woman had a singing voice. He said that he was under the impression that Dr. Abbe had made more applications at his office than had been stated by Dr. Harris.

DR. MAYER said that Dr. Harris had laid great stress upon the value of suspension laryngoscopy. There seems to be no doubt but that this meth-

od is going to be very popular. He had noticed that in Bernard Shaw's play, "Pygmalion," there is a suspension apparatus on the stage, and people were asking what that "hang thing" was.

DISCUSSION.

DR. FREUDENTHAL said that he had not had the opportunity of seeing Dr. Coakley's cases, but that it was apparent that so far the results had been very good. He did not, however, understand why these gentlemen applied the radium externally. As laryngologists, we are accustomed to make applications directly to the larynx. He himself has always used the radium in this way and has never had any ulcerations or affections like dermatitis in the larynx, for the reason that he does not apply it at first for any length of time. He first uses it for ten, twenty, or thirty minutes at a time, and when the patient can stand it, it is used for a longer period. Dr. Freudenthal said that he believes in short applications. Some time ago he had a patient, whom Dr. Berens also had seen. This man had a typical carcinoma of the larynx, and refused to be operated. He was treated with radium and was improved. Then several general surgeons advocated the opening of a cyst which was about half the size of a man's fist, which the man had had for five or six years or longer. Dr. Freudenthal objected to this, but it was finally opened. The wound never closed, but carcinomatous masses sprang up and pushed against the larynx. Radium outside had no effect; while inside the larynx almost the entire mass had disappeared. It was a very remarkable case. The man died later from general carcinomatosis.

DR. HARRIS said that Dr. Coakley had opened up one of the most important subjects that we can consider and on which we should give our experience and judgment from time to time. The meeting to-night was a large one, and it would be a great pity for any misunderstanding or mistake in regard to Dr. Coakley's statements to get about. His last remark was that he thought cancer was still present in one of his cases.

Dr. Harris said he believed that in the treatment of papillomata in the adult we have in radium a very efficient remedy in the average larynx, and that he agreed with Dr. Freudenthal that there is no reason for applying it externally. He had never heard of a burn in the application of radium internally, because of the guarding of the healthy tissue and the application for not too long a time. It has been surprisingly easy to apply it for as long as thirty minutes, and where it can be done it is preferable to the external application, with the burns outside.

DR. HARMON SMITH said that last year he had presented to the Section a case of carcinoma of the larynx which had been treated with radium. Subsequent to the application there was always an infiltration of the adjacent tissues which simulated syphilis in appearance rather than carcinoma, but the patient had never complained of pain and following each application there seemed to be immediate improvement. The cases, however, had all progressed until the end came, possibly at a time more remote than would have occurred had the radium not been employed. In one case of squamous-celled epithelioma of the antrum, in which the radium had been used, the progress of the disease had apparently been arrested and while the tumor was still visible in the nares, there was no

apparent cachexia or inroads upon the general system of the patient, although he had been under observation for three years.

DR. ABRAHAM said that he had had four cases treated with radium, two of which had died. In one of them, he himself had applied the radium as advocated by Dr. Abbe. It was applied intra-laryngeally. The first application was for thirty minutes; the second, for fifty or sixty minutes. Since then he has had two cases in which the radium had been applied and was still being employed. One of these cases had a very peculiar reaction following the second application—a marked hemorrhagic edema. It was a very marked carcinomatous growth, and operation was impossible. The other case involves the tongue and larynx, and the last application of radium was made for something like fifteen hours. The radium was stitched into the base of the ulceration and left there for about fifteen hours. Following this strong application of the radium, there was a marked reaction and quite a considerable relief of the pain. He had seen the patient in the afternoon, and he is now beginning to take morphin for the relief of the pain which is radiating into the ear of that side, so that he cannot swallow. A second application will be made. In all of these cases the application has been made directly. The last case is especially interesting on account of the length of time that the radium was employed.

DR. COAKLEY said that in the first case he had not taken a section from the cord. He thought the patient had some epitheliomatous tissue, but there is a great improvement, though not a cure. The second case was a failure, so far as radium applied externally was concerned. It benefited him for a time, but afterwards the growth increased very rapidly, and nothing but surgery promised any relief. Radium will absorb granulation tissue very rapidly, and he had seen a case where they are claiming a cure of epithelioma of the larynx, when all that had been accomplished was the absorption of the granulation tissue.

Abducent Parlysis of Left Eye, Due to Left Ethmoiditis. DR. GERHARD H. COCKS.

Dennis S.; aged, 15 years; history taken May 8, 1914. This boy had measles when 4 years old, and with this exception has always been in good health.

Ten days ago, on awakening in the morning, the patient "saw double." Four days ago he consulted Dr. Crigler in the Eye Clinic, who discovered that his diplopia was due to a left aducent paralysis. The left eye pointed well over to the nose. Dr. Crigler reported normal vision in both eyes, and referred him to me for examination of his nose.

The nasal examination failed to account for the condition. There was no purulent discharge, and the Wassermann was also negative. A radiograph, taken by Dr. Law, demonstrated cloudiness in the left ethmoidal region and over the right antrum. (There were no symptoms referable to the R. antrum). The lateral view shows very nicely the relation of the second bicuspid, and first and second molar teeth to the floor of the antrum. An unerupted third molar can also be seen.

We decided that the paralysis was probably due to the ethmoid condition, and *operated on May 18, 1910, twenty days after the onset of his*

eye trouble. The middle turbinate was removed under cocain anesthesia and the ethmoids exenterated and the sphenoid opened. On account of the bleeding, which was rather profuse, it was difficult to accurately inspect the ethmoids. At any rate, no pus was found in either the ethmoids or sphenoid, and it is probable that nothing was present at this time except the thickened and inflamed mucosa.

Improvement in the movements of the eye began a day or two after operation and continued. On returning to the hospital, August 1, the patient reported that his eyes had been straight since July 1, and he had been free from diplopia since that time. When I examined him he had perfectly normal movements of both eye-balls.

There was nothing in his previous history to account for his trouble. His parents are both living and well. He has six brothers and sisters, all living and well. He himself has always been well except for an attack of measles when four years of age.

No medication was employed in this case.

Teratoma of Naso-pharynx. Presented by DR. GERHARD H. COCKS.

This tumor was accidentally encountered last summer while doing adenoid and tonsil operations on ward cases.

The patient was a boy, 14 years of age, who had suffered from nasal obstruction and mouth breathing since the age of 2½ years, when he had had an attack of croup. He was first seen by me when he was put on the operating table, where small buried tonsils were removed. There was no adenoid. On looking into the mouth a small tumor-like mass was observed to suddenly shoot down into view from behind the right posterior pillar. This tumor was attached by a pedicle to the posterior aspect of the soft palate near the base of the uvula. The tumor was grasped with a forceps and removed with a snare.

The pathologist, Dr. Dwyer, reports that "the specimen contains a mass of different tissues, including muscle, gland, and cartilage—all in such arrangement or lack of arrangement that, taken in conjunction with the site of removal, the diagnosis of teratoma may be made."

Teratoma of the pharynx is a comparatively rare condition. Dr. Evers, in an article published in THE LARYNGOSCOPE, September, 1914, reports one case of his own, and has collected reports of fifteen other cases. Of this number, ten were attached to the soft palate, one to the right posterior pillar and right tonsil, and one to the posterior wall. In the other three cases the point of attachment was not given, because Evers did not have access to the original reports.

Case of Sub-perichondral Hematoma of Thyroid Cartilage. Presented by DR. GERHARD H. COCKS.

Four weeks ago the patient, a woman 62 years of age, went to one of the docks in the city to meet some friends arriving on an incoming boat. She stood at the pier some time, looking up at her friends on the upper deck. In a few moments, she noticed a feeling of distress or soreness in the region of the thyroid cartilage, which she attributed to the unusual position in which she had held her head. The following day, she noticed a swelling over the thyroid cartilage, and she states that this swelling

slowly increased in size for a day or two. She has experienced no actual pain.

Two weeks ago, she came under observation at the Manhattan Eye, Ear, and Throat Hospital. At that time, she had a bilateral symmetrical swelling over the thyroid cartilage, separated in the median line by a vertical groove. The swelling corresponded to the size and shape of the thyroid ala on either side. There were no signs of inflammation. The tumor was elastic, with an indistinct sign of fluctuation. The Wassermann reaction was negative. The patient refused to allow aspiration of the tumor until to-day, when her consent was finally obtained. A syringe-full of brownish-red fluid was withdrawn, which proved to be broken-down blood like that present in hematoma of the auricle. The case is presented because of its rarity.

Syphilis of the Larynx. Presented by DR. GLOGAU.

A Case of Extensive Syphilitic Scar Tissue of the Throat. DR. OTTO GLOGAU.

Patient, Mr. W. K., 31 years of age, was referred to me by Dr. Klein. He contracted syphilis sixteen years ago. Ten years afterwards there occurred in the mouth and throat numerous syphilitic ulcers that brought about the present condition. He is able to open his mouth only 1½ cm. The soft palate is transformed into star-shaped scar-tissue that joins the scar-tissue of the tonsillar region and of the pharynx. In this entirely immobile mass of scar-tissue that forms the roof of the mouth, there is only a small opening (5 mm. diameter) at the former site of the uvula, that communicates with the nasal cavity. On both sides there extends between the upper and lower jaws a stony, hard mass of scar-tissue, measuring in length 4 cm. and in width 3 cm. This mass of scar-tissue extends into the cheeks, where it may be felt from the outside. It is this mass of scar-tissue located between upper and lower jaws, that prevents the patient from opening his mouth. Posteriorly the stellate scar-tissue extends downward to the level of the larynx. Wassermann reaction at the present time is negative. The patient is shown before the operation, the purpose of which will be to remove the scar-tissue ankylosis and to make, if possible, a somewhat movable velum. The patient, of course, speaks constantly through the nose, the condition being one of rhinolalia aperta. (Since the demonstration of the case the patient was operated by me. The scar-tissue between the jaws was removed to an extent of 2 cm. and until the soft part of the cheek was reached. At night-time the patient wore an appliance for keeping the mouth open, during the day he did this by himself. He is at present enabled to open his mouth 4 cm.)

DISCUSSION.

DR. GUTTMAN asked whether Dr. Glogau had noticed that there was still suppuration, inasmuch as pus could still be pressed out from the lacrimal sac. West was one of the first who did the operation and there have been many modifications. Dr. Guttman said that he did not see that it had any advantage over the ordinary method of extirpating the lacrimal sac. That is simple, and can be done in a short time under local anesthesia, and the scar is hardly noticeable. As a rule, these cases get

well. He cannot see the advantage of leaving the thread in the lacrimal sac, as it keeps up a constant suppuration, and makes healing difficult. He thinks the best method of treating the condition is to extirpate the lacrimal sac.

Etiology and Prophylaxis of Tubercular Laryngitis. DR. J. D. DWORETZKY.

The author examined 600 patients at the Otisville Sanitarium for tuberculosis, 500 of which were adults and 100 children. He found 128, or 25.6 per cent of the adult patients to be suffering from laryngeal tuberculosis. No tuberculosis of the larynx was detected in any of the children.

He also found 116, or 91 per cent of the laryngeal cases had positive sputa. Of the remaining twelve negative cases, seven are still of doubtful diagnosis as to the laryngeal lesion; three have not had a sufficient number of sputum examinations; while two were persistently negative.

Most of the cases occurred in adults between 20 and 45 years of age—28.8 per cent occurring in the male patients and 20.7 per cent in females.

Nasal obstruction was diagnosed in 92 per cent of the cases—36.7 per cent having slight, 18 per cent moderate, 8 per cent marked obstruction and 29.3 per cent suffering from an atrophic or suppurative condition in the nose; 99 per cent of the patients had marked chronic pharyngitis; 60 per cent gave a history of being very susceptible to "cold;" 60 per cent presented an abnormal condition of the tonsils or soft palate.

Almost all gave a history of cough extending over a period ranging from a few months to a number of years; 78 per cent have used tobacco—40 per cent have used it to excess; 42 per cent have used alcohol.

Out of the 500 patients, the author found tuberculosis of the larynx present in twelve of the incipient cases; in 26.4 per cent of the moderately advanced cases; and in 46 per cent of the advanced cases.

In speaking of the prophylaxis of laryngeal tuberculosis, the author suggests the removal of the predisposing causes, in addition to the checking and combatting of the direct cause. In addition to the general hygienic and dietetic treatment, he advocates the careful examination of the nose, throat, and larynx of every patient with pulmonary tuberculosis. If any pathological condition should be found in the nose or throat and if that condition might have an undermining influence on the larynx, it should be corrected or remedied. Of course, the patient's general condition must always be considered.

DISCUSSION.

DR. HARRIS said that the section was indebted to Dr. Dworetzky for directing attention to this important subject, and that he had not heard more carefully digested statistics. The emphasis placed on prophylaxis was the important point to carry away. He felt that he himself had failed to attach sufficient importance to this. Dr. Dworetzky had been particularly solicitous about this, and if these problems are approached in that way, instead of treated after they arrive, the number of cases will be very considerably reduced. It is significant that in 93 per cent of the cases at the Otisville Sanitarium he found more or less obstruction in the nose. That is a fact that all should digest and carry away.

DR. FREUDENTHAL said some eighteen years ago he had published a paper on this same subject, and since that time has been writing on the same topic. About twelve years ago the sanitarium at Bedford Hills in New York was opened, and from that time on every patient that is admitted is examined with regard to the condition of the upper air tract. These patients are treated systematically three or four times a week or every day if deemed desirable. Any operation found necessary is performed. He did approve of operating on deviated septa if they prevent breathing, for there is generally little loss of blood.

In his investigations of eighteen years ago, there was one point noted on which Dr. Dworetzky had not thrown any light at all. Of several hundred patients then examined, tuberculous ulcerations were found on the roof of the pharynx in a number of cases, and from thence tuberculosis generally spread over the body. According to Dr. Freudenthal's opinion, a positive sputum is not very essential to the production of a laryngeal condition. There might be other local conditions, as previous attacks of laryngitis, etc., which make the larynx a locus minoris resistentiae. If then tuberculosis breaks out it will settle in the larynx just the same as in lues, or even carcinoma.

DR. MAYER said that Dr. Dworetzky had spoken of the absence of laryngeal tuberculosis in children, but that it would not be right to have it go out from the section that this condition is non-existent in children, or even comparatively rare, for quite a number of cases are recorded in the literature. The diagnosis of this condition in young children is rare. There is every reason why these cases do not come to the Otisville Sanitarium, or to any sanitarium, for the children die long before anything is noticed in the larynx. A very interesting observation was made a few years ago where a number of persons with laryngeal tuberculosis were examined, and among them those who chewed and took snuff were found to be predisposed to laryngeal tuberculosis.

One important thing should be remembered—and we should insist upon it as far as we have any influence—that we should do all we can to prevent patients from going to sanitariums where there is no competent laryngologist to observe them, and prevent or ameliorate these conditions. There is not time to refer to many points, but the direct treatment of the larynx with ozone has been tried with great success in some places, as well as other methods of treatment.

DR. DANZIGER said that he would like to have the onomatology of this condition a little more correct. The writer of the paper had spoken of the high percentage of tubercular laryngitis in tubercular patients. He should distinguish between laryngitis in the tubercular and tuberculosis of the larynx. Dr. Danziger further said that during the past twelve years, in his service in the sanitarium of the Montifiore Home he had found a large number of cases of laryngitis, and only about 5 to 8 per cent of cases of tuberculosis of the larynx. If the reader of the paper had reference to beginning tuberculosis of the larynx, he should mention the initial form—perichondritis, tuberculomata, infiltration, or ulceration.

Dr. Danziger does not believe that nasal deformities, as deviation of the septum, are important etiological factors, because the proportion of

nasal deformities in the tubercular is no larger than in non-tubercular patients. One of the most frequent and annoying complications in the upper air passages is a tracheitis caused by the mechanical irritation of the cough, and in turn producing cough again. This cough is also productive of laryngeal congestion.

DR. DWORETZKY said that of the 128 cases he had reported, all had very definite lesions. He had classified these in four stages: (1) The doubtful stage; (2) the stage of infiltration; (3) the stage of ulceration; and (4) the advanced stage with marked ulcerations and perichondritis in a few cases. With the exception of the doubtful stage, of which there were only eleven, all the others were positive cases of laryngeal tuberculosis with distinct infiltration and ulcerations. There were a great number of cases (namely 246) of catarrhal laryngitis which were classified separately as such.

DR. OTTO JOACHIM (New. Orleans) read some very interesting observations regarding the war in Europe, where he had rendered service in caring for the wounded.

Regular Meeting, November 26, 1914.

Instruments for Operating with Suspension Laryngoscopy. Presented by DR. ARROWSMITH.

DR. ARROWSMITH said he thought the members of the section would be interested in seeing the instruments for operating with suspension laryngoscopy which had been described by Dr. Lynch at Atlantic City in the spring. As far as he knew, this was the first set which has been received here, and it seems to be a valuable addition to that method of treatment.

Cyst of Maxillary Sinus. DR. WOLFF FREUDENTHAL.

The patient was 56 years of age and came to the clinic about two weeks ago, with the history that about five or six days before he had had a tooth extracted, immediately after which his face began to swell. Later it turned out to have happened several months before. When he came under observation he apparently was suffering from some acute infection, which it was thought might have come from the extraction of the tooth. There was a large swelling coming from the antrum and another one that had penetrated the hard palate. Slight elevation of temperature. When examined under general anesthesia, however, the mass did not appear to be an abscess but suggested a cyst, and on aspiration with a needle the characteristic fluid for such a condition was withdrawn. The mass was removed as thoroughly as possible, tincture of iodin was applied, and the patient was put to bed. The conditions found were unusual. There were perforations of the bony tissue in all directions, the smallest opening into the canine fossa. That had to be materially enlarged. Almost the entire floor of the eye was gone; there was a large

opening into the pharynx laterally, an opening into the nose, and a big perforation in the hard palate. But the mucosa of the hard palate was intact.

There is nothing unusual in the convalescence of the case, only that the perforation in the hard palate is becoming smaller and it is possible that it will close up of itself.

Scleroma of the Larynx. Presented by DR. FREUDENTHAL.

The patient, a woman, was about 53 years of age, and had had seven children. Her illness dated back twenty years, at which time she was in Russia and was under the care of Dr. Wolkowitz, who has written a great deal on the subject of rhino-scleroma. This would suggest that she had at that time already suffered from some form of scleroma of the larynx, for she states that she had to stay in the hospital for a year or so. After that she was well up to six years ago, when she came to the clinic complaining of a cold. She states that she was cured of this very quickly. Dr. Freudenthal said that he did not remember this visit of the woman, but that now she has come to him suffering from dyspnea, and there was a mass on the right ary-epiglottic fold which was spreading and made the lumen of the larynx very small. Some of this mass was removed, and the pathologist reported that it was scleroma. The picture as now presented is again somewhat aggravated and the larynx is again closing up. The question is: what is to be done for the patient? An attempt had been made to remove the masses intra-laryngeally, but possibly she would be again put under suspension laryngoscopy and a bougie inserted. When the woman is quiet the dyspnea is not noticeable, but when she walks it is very marked.

Case Showing Results of Lateral Pharyngotomy (15 years ago) for Syphilitic Stenosis of the Larynx. DR. THOMAS J. HARRIS.

E. A., age 28. The patient first came under Dr. Harris' care fifteen years ago. At that time there was a complete obstruction of the nasopharynx due to cicatrix and ulcerations in the lower pharynx, causing marked difficulty in swallowing.

The case was diagnosed as one of hereditary syphilis.

A full course of the mercurials and iodides was carried out. The ulceration was healed but the cicatrization went on to the point of threatening life on account of starvation. A lateral pharyngotomy was done by Dr. B. Farquar Curtis, and a plastic flap was formed from the pharyngeal mucosa. The exact details of the operation have escaped Dr. Harris. The operation was a complete success.

Since that time there has been no difficulty in swallowing. For a considerable time afterward it was necessary to dilate the larynx, which was obstructed by a syphilitic web. At present the patient has no trouble whatever with either swallowing or breathing, and until recently had not been seen since the time of the previous treatment.

FIRST INTERNATIONAL CONGRESS OF EXPERIMENTAL PHONETICS.

Hamburg, Germany, April 19-21, 1914.

The Congress was opened by the mayor; the chairmen were Prof. Meinhof (Hamburg), Prof. Gradenigo (Turin) and Prof. Gutzmann (Berlin). This Congress is the first of its kind and shows the rapid development the science of phonetics has undergone in the last few years. The presence of the representatives of numerous universities and institutes, and several hundred scientists, including many of the most renowned oto-laryngologists, shows how everwhelmingly the call issued by the master of phonetics, Prof. Gutzmann (Berlin) was responded to.

In his opening address, Prof. Gutzmann explained the principles and aims of experimental phonetics. It took some years before the science of experimental phonetics was considered as an independent specialty. Even now, there is some opposition, from the conservatives, to the application of experiments in phonetics, fearing that it may be lowered to a mere mechanical science.

The basic principle of experimental phonetics is, however, not the application of machines and instruments, but experiment with the intention of gaining thereby new experiences. The phonetic instruments are the results of preceding experiments; their purpose is the examination and objective analysis of the phonetic phenomena that may be perceived either by the sense of vision or by that of touch.

Through these experiments, the minute phonetic movements are magnified and retarded in their rapid course so as to permit (regardless of time) of a thorough examination.

Modern philology and linguistics are benefited through these phonetic experiments in a special way as the physiology of speech is in a general way. The study of vocal art and the ideal education of deaf mutes cannot be achieved without the aid of experimental phonetics. At the last international Rhinological Congress at Berlin, it was demonstrated beyond doubt that scientific oto-laryngology depends to a great degree on the results of experimental phonetics.

SCHOEN gave the results of the "Measurements of the vital capacity in deaf-mutes" and pleaded against over-taxing the pupils, as the vital capacity of the lungs would suffer thereby, a statement that was contradicted by KATZENSTEIN and HÄNLEIN.

Two other papers, referring to the instruction of deaf-mutes, were read, one by OTT (Lübeck) on "Examinations of the voice," and the other by LINDER (Leipzig) on the "Methods of articulatory instruction."

GRADENIGO'S report on "Experiments concerning the sensitiveness of the ear to sounds of different pitch" is of great interest to otologists. He measures the degree of sensitiveness to the different sounds by the different weights used in making the respective metal strings vibrate.

Sokolowsky (Königsberg) reported the results of his analysis of false singing sounds.

Nadoleczny demonstrated peculiar pulsatory phenomena on pneumographic, laryngographic and volumetric curves, and also the curves of the laryngeal muscular movements, before the sounding of the voice and intended singing tones.

Von Maljutin (Moscow) tried to draw from the form of the palate conclusions as to the character and mobility of the singing voice.

Silva gave valuable suggestions for the fundaments of the science of vocal arts on the basis of experimental phonetics. The quantity of air consumed in singing was analyzed by Wethlo and Von Zanten. Different speakers (Wethlo, Zumsteeg and Flatau) discoursed on the technic of stroboskopy.

Weiss (Königsberg) succeeded in photographing the pressure fluctuations of the trachea and the movements of the vocal cords.

Zwaardemaker demonstrated the characteristic vocal ferments by means of membraneless resonators.

The stereo-photographs of the larynx and the cinematographic pictures of the movements of the vocal cords as demonstrated by Von Hegener were very impressive. The intimate relationship between experimental phonetics and psychology were shown by Ponzo in his paper on the "Characteristics of the pneumographic curves, in naming different objects."

Baglioni (Rome) made the curious observation that the register of voice changes during the day. His physiological explanation is the fact that the neuro-muscular tonus of the laryngeal muscles is a lower one during the night and early morning hours, and rises during the day. Detonation of the normal voice by local application of anesthetics in the larynx and the nose could be demonstrated by Hahn (Turin). The influence of the voice of the teacher on that of his pupils was analyzed by Biaggi (Milan). Valuable hygienic suggestions were given by Clara Hoffmann (Hamburg) in her paper on the "Voices of school-children." The disturbances of speech following mutation were analyzed by Zumsteeg.

Colds, Their Cause, Prevention and Cure. W. Scheppegrell, *Pan-Am. Surg. and Med. Jour.*, July, 1914.

Many cases of supposed "colds," developing during the spring and which have been accepted by the profession as true coryza, were found by the author to be due to the excitation of the pollen of the winter grass (*poa annua*) used for lawns during winter.

A. A.